

CENTRAL POINT

PCTM TOOLS

d e l u x e

VERSION
6

TM

DATA RECOVERY
DOS SHELL



Central Point SoftwareTM
INC



DATA RECOVERY DOS SHELL

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Keep a copy of your registration number for future reference.

Customer Name: _____

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About This Manual

The PC Tools Data Recovery and DOS Utilities manual is organized in the following parts:

Part 1
Getting Started

Describes how to install PC Tools Deluxe utilities with Install and includes a chapter explaining the user interface.

Part 2
PC Shell

Explains how you can display your data, manage files and directories, find, view and launch applications and perform other functions with PC Shell.

Part 3
**Disk Maintenance,
Optimization, and
Data Recovery**

Describes how to use Diskfix to repair most disk problems; PC-Cache and Compress to optimize disk performance; and Mirror/Rebuild to protect your data from potential disaster and to recover from an accidental format.

Part 4
Securing Your Data

Explains how to use PC Secure to encrypt and decrypt files.

Part 5
Appendices and Index

Includes appendices for memory-resident programs, troubleshooting, and technical support information.

Typographic Conventions

The actual keys you press appear like this: ALT-R. For example, ESC means to press the Escape key. Hyphens between keys tell you to press them simultaneously.

Information that you enter from the keyboard appears like this:

PCSHELL/R

Numbered lists (1, 2, etc.) indicate a procedure with two or more sequential steps.

This symbol (□) means a procedure follows.



Keyboard procedures are indicated by this symbol.



Mouse procedures use this symbol.



Important information or warnings use this symbol.

Filenames are in all caps: PCSHELL.EXE

Parameters are written using the following conventions:

- Brackets indicate optional terms you may omit. Do not enter the brackets.
- Drives and other variables are in lower case and italic

For example:

PCFORMAT *d:* [/S] [/1] [/8] [/V] [/4] [/N:xx] [/T:yy] [/F:nnn]

Part 1

Getting Started

PC Tools™ Deluxe Data Recovery and DOS Utilities represents a package of utilities with a DOS shell, file and disk recovery programs, disk optimization, and a file security system. PC Tools Deluxe features pull-down menus with moveable and resizable windows, and full color control. The DOS shell can be made “resident” so it is always available for your use. PC Tools Deluxe increases your efficiency by providing you with the following features:

- an intuitive and easy-to-learn user interface
- on-line help for quick answers and guidance
- full mouse and keyboard support
- memory-resident or standard DOS program, whichever you prefer
- Standard network-compatible DOS functions supported on Novell's NetWare and IBM PC LAN

This section of the manual contains the following chapters:

- Introduction
- Installation
- About PC Tools Deluxe

1. Introduction

The PC Tools Deluxe package includes the following programs:

PC Shell™: a powerful utility program that provides all the critical DOS maintenance commands in an easy-to-use window environment. It provides copy, move, delete and compare file functions, as well as file and disk editing, system and data disk formatting, and directory organization commands. PC Shell has viewers for displaying the files generated by most database, spreadsheet and word processing applications in native format and .PCX graphics files generated by programs such as PC Paintbrush. In addition, PC Shell allows you to recover deleted files, map memory-resident programs, and run other applications from PC Shell. PC Shell can be run resident or as a stand-alone application, and you can optionally have a DOS command line available at all times.

DiskFix: a powerful, yet easy-to-use utility that repairs various problems that can occur on your hard or floppy disks. DiskFix is completely automated so that you don't need to understand or perform the repairs yourself. Repairing your disk is as easy as answering a few simple yes or no questions.

Mirror/Rebuild: provides protection against accidental erasure or formatting of your hard disk. Mirror keeps a backup copy of the File Allocation Table (FAT) and the root directory of your hard disk in a special hidden file. If someday you accidentally format your hard disk, you can quickly restore your data. Rebuild will do its best to restore your hard disk to the same state as Mirror recorded, effectively undoing the erasure or formatting. Mirror will also optionally create a delete tracking file that will save the full file name and all clusters a file occupied before it was deleted. The Undelete option of PC Shell will be able to use this information to fully recover accidentally deleted files automatically.

PC-Cache™: is designed to speed up hard disk access by storing the most frequently used information in your computer's memory. It speeds up programs by reducing the number of times the computer has to wait for the disk when reading commonly used information.

Compress: is a stand-alone application that can optimize your hard disk's performance. Compress will check your hard disk for fragmentation and unfragment your files to improve disk access and aid in file recovery. It can move your subdirectories to the front of the hard disk so they may be accessed much faster. Compress can sort all your subdirectories simultaneously as it compresses. It will also check your hard disk for errors and move files out of the way of those errors.

PC Format: is a replacement for the DOS FORMAT.COM program. PC Format will format hard disks and floppy disks of all densities in such a manner that Rebuild can recover their data.

PC Secure™: is a powerful tool for keeping your sensitive data and programs safe and secure. PC Secure can encrypt, decrypt, compress, and hide files on your disk. PC Secure uses the DES encryption system, which thoroughly randomizes the data and is virtually impossible to decrypt without the key. With the compression option turned on, PC Secure can reduce the size of most files from 25% to 60%. Files can be encrypted on one computer and decrypted on another, even if the other computer is a Macintosh (requires the use of MacTools Deluxe).

If you purchased PC Tools Deluxe from a dealer or mail order company, please take a moment now to fill out and send in the registration card. If you purchased PC Tools Deluxe directly from Central Point Software, you are already registered as an owner, so you don't need to return the registration card. Being a registered owner entitles you to technical support and lets us tell you about product updates. When PC Tools Deluxe is updated, all registered owners can purchase the update at a greatly reduced price.

Technical Support

If you need technical support for PC Tools Deluxe, please call (503) 690-8080. You can also fax our technical support staff information at (503) 690-7133.

Our business hours are Monday-Friday, 6 am - 5pm PST. Please read the Technical Support appendix and complete the Technical Support Checklist in the Appendix C before contacting us.

Additional PC Tools Deluxe Information

For information on last-minute changes to the program that was not included in the manual, read the README.TXT file (if one is included). Reviewing this information insures that you have the most current information possible about the programs.

2. Installation

Requirements

All PC Tools Deluxe utilities programs are designed to work with the IBM PS/2 (all models): PC, XT, AT, and most IBM-compatible computers. Your computer should have at least 512K of memory. If you want to keep PC Tools PC Shell “resident” in memory while other programs are running, it’s a good idea to have 640K of memory. You need only one disk drive, although PC Tools can also work with multiple disk drives, and works better with either a hard disk or at least 320K of EMS memory.

To start up PC Tools, you need to boot your computer with version 3.0 (or higher) of DOS. (We recommend that you use DOS 3.2 or higher.) Once PC Tools is running, it can work with disks formatted by any version of DOS.

Note: *We have made a great effort to make PC Shell compatible with other resident programs. PC Shell is very “well-behaved” in its operation while some other resident programs are not. If you experience any problems with PC Shell and other resident programs, try changing the order in which your resident programs are loaded. (We’d also appreciate knowing which programs you had trouble with.) See the appendix entitled “Memory Resident Programs” for more information.*

Mouse Users

PC Tools Deluxe is designed to perform optimally with a mouse. If you want to use a mouse, you must have its driver installed before PC Shell in your AUTOEXEC.BAT or your CONFIG.SYS file. See your mouse documentation for more information. If you are using a Microsoft mouse, then you should have version 6.14 or higher of the Microsoft Mouse driver. If you are using a Logitech/Dexxa mouse, you should have version 3.4x or higher of the mouse driver. Older mouse drivers may not work with all PC Tools Deluxe applications.

Install

You must run the Install program to install PC Tools on your hard disk because some of the files are compressed. Install will copy and configure all of the PC Tools Deluxe utilities onto your hard disk, or network server, based upon the choices you make. The process is easy; you merely need to follow the instructions on the screen.

2. Installation

The installation procedure assumes you are installing from drive A. If you want to install from a different drive, substitute that drive letter for drive A in the following procedure:

1. Insert PC Tools Deluxe disk # 1 in drive A.
If you are at the C: prompt, type A:.
2. At the A> type: INSTALL and press Enter.
3. Follow the instructions on the screen for installation.
4. Reboot the computer. You are now ready to begin using all of the PC Tools Deluxe programs.

PC Tools Deluxe Files

PC Tools Deluxe is shipped to you on six 5 1/4 inch disks or three 3 1/2 inch disks. The following files are necessary for executing PC Tools Deluxe programs and should not be deleted:

File	File's Purpose
INSTALL.EXE	Install program
PCSHELL.EXE	PC Shell program
PCSHELL.OVL	PC Shell program overlay
PCSHELL.CFG	Configuration file (saves changes in screen size, colors, customized menus, etc.)
PCSHELL.HLP	PC Shell Help
PCRUN.COM	PC Shell--runs programs in resident mode
COMPRESS.EXE	Compress program
COMPRESS.HLP	Compress Help
PCSECURE.EXE	PC Secure program
PCSECURE.HLP	PC Secure Help
MIRROR.COM	Mirror program
REBUILD.COM	Rebuild program
PC-CACHE.COM	PC-Cache program
PC-CNV1.OVL	PC-Cache overlay for conventional memory
PC-EXT1.OVL	PC-Cache overlay for extended memory
PC-EXP1.OVL	PC-Cache overlay for expanded memory
PCFORMAT.COM	PC Format program
LLQC.EXE	LapLink Quick Connect client program (TSR)
LLS.EXE	LapLink Quick Connect server program
DISKFIX.EXE	Diskfix program

PARK.COM	Stand alone disk park program
*.VWR	Viewer files
UNDELETE.EXE	Command line file undelete program

These files have been included and may be deleted if you need disk space:

File	File's Purpose
README.TXT	Additions to the documentation
MI.COM	Memory mapping program run from DOS prompt

You can also delete any of the *.VWR files which you do not need.

In addition, the following files will not be found on the distribution disk, but are created as needed by PC Tools programs:

File	File's Purpose
PCSHELL.IMG	Program image (used in resident mode only)
PCSHELL.THM	Swapped memory area (used in resident mode only)
PCSHELL.IMX	Program image (used in non-resident mode only)
PCSHELL.TRE	Tree List storage (used only on networked drives)
MIRROR.FIL	System area image
MIRROR.BAK	Older version of MIRROR.FIL
MIRORS.V.FIL	Pointer file
PCTRAK.DEL	Delete tracker data
PARTNS.V.FIL	Saves the partition table information
COMPRESS.CFG	Compress configuration
PCSECURE.CFG	PC Secure configuration

Running on a Network

Important: You must purchase a copy of PC Tools Deluxe for every station on the network that has access to the PC Tools Deluxe programs or contact us to purchase a Network or Site license.

The PC Tools programs can be installed in a write-protected directory on a Novell NetWare or IBM Token Ring network server. They can then be run from any station on the network which has access to the files on the server. You (or your network supervisor) will need to make sure that the PC Tools server directory is in your path. In

2. Installation

addition, you will need to set an environment variable "PCTOOLS", specifying where PC Tools should put all user-specific files (PCSHELL.THM, PCSHELL.CFG, etc.). This needs to be a directory that is unique for each user and to which the user has write privileges. This environment variable is either added to the station's AUTOEXEC.BAT file or is done at the supervisor level on the network. If it is done in the station's AUTOEXEC.BAT file, it should look like this:

```
SET PCTOOLS=drive:\directory path
```

Note: Do not insert spaces on either side of the equal sign, "=".

Where "drive:" is replaced with the drive letter and "\directory path" is replaced with the full path where PC Tools should place its user-specific files.

When PC Shell is used on a network, the networked drives that can be accessed will appear with your local drives on the Drive Line, under the Horizontal Menu Bar.

All of PC Shell's commands are available for use on networked drives except the following:

Directory Maintenance (Prune and Graft function)

Rename Volume	Search Disk
Directory Sort	Undelete
Disk Info	Verify Disk
Disk Map	View/Edit Disk
File Map	Clear File

If you use the Print File or Print Directory command to print to a networked printer, you won't see the file printed (or queued) until PC Shell is terminated or until you press CTRL-ALT-[PRINT SCREEN].

Network Supervisors

If you are setting up PC Tools on a Novell NetWare network, you should make the PC Tools directory path available to all users, and also use a system login script to define the PCTOOLS environment variable for all users. For example:

```
SET PCTOOLS="H:\\HOME\\%LOGIN_NAME"
```

where the directory below "home" has the same name as a user's login name and the user has full write privileges.

Note: Do not insert spaces on either side of the equal sign, "=".

Install will copy the PC Tools programs in a write-protected directory on a Novell NetWare or IBM PC LAN network server. They can then be run from any station on the network which has access to the files on the server. When installing to a network, Install will not make any modifications to an AUTOEXEC.BAT file or install any applications, other than adding the PC Tools applications into PC Shell's Applications menu.

If you want to make applications available to users, then you can add them to the Applications menu (see the section "Applications Menu"). When you do so, you need to have the current directory set to where PC Shell was installed on the network so that the changes will be reflected in the files that will be run from the server. We recommend that Lotus 1-2-3, dBASE, WordPerfect and any other database, spreadsheet, or word processing applications be installed so that these applications can be launched from their respective viewers inside PC Shell.

If PC Tools is installed on a Novell NetWare server by a supervisor and if the supervisor sets up the path and environment variable for all users, Install does not need to be run by each station user.

Tree Display on Networks

If you are connected to a Novell network and you use PC Shell to look at the network server, it will only display directories in the tree window for which you have at least read privileges. This makes PC Shell much easier to use on a network as you only see the directories you use, rather than all the potentially hundreds of directories on the server.

Re-Reading the PC Shell Tree on Networks

PC Shell saves a copy of the directory tree for a drive in the file PCSHELLd.TRE, where "d" is the drive letter. For example, PCSHELLC.TRE contains the directory tree for drive C; PCSHELLF.TRE contains the directory tree for drive F; and so on. When you tell PC Shell to change drives, it looks for a tree file for that drive, and if it finds one, reads the tree from the file rather than from the drive itself. This makes PC Shell faster when switching drives on networks.

If you want PC Shell to reread the drive because the directory structure has changed, for example, you have renamed, moved, resorted, etc. the directory, you must use the Re-Read the Tree command from the Options menu in PC Shell.

3. About PC Tools Deluxe

This chapter is an overview of the PC Tools Deluxe interface. Although the applications contained in your PC Tools Deluxe package perform different tasks, they have the same user interface and window environment, which makes them easy to learn and use. We recommend that you read this chapter thoroughly before continuing.

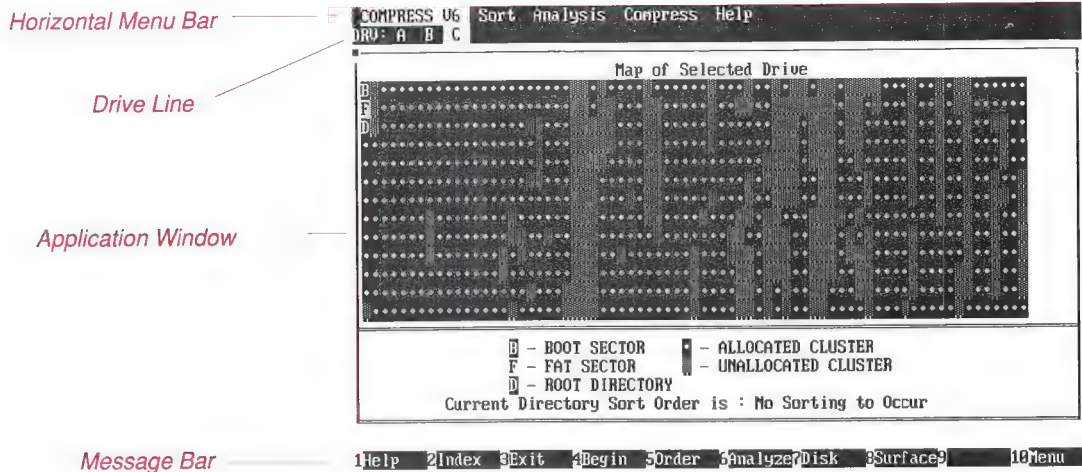
To use PC Tools Deluxe, it is assumed you are familiar with MS-DOS or IBM PC-DOS, and know about files, file names, and extensions, and how to use the common DOS commands. You need to know how to boot DOS (answer the date and time questions if necessary) to get the DOS prompt (A> or C>). If you need to know more about these, please refer to your Disk Operating System manual.

The PC Tools Deluxe Screen

PC Tools Deluxe uses pull-down menus to make choosing and understanding commands easy. A window environment is used to display the individual applications and makes it possible for a single application to display multiple items (such as pull-down menus, dialog boxes, application windows) at the same time. Even though each application in PC Tools Deluxe performs unique functions, the interface is the same.

Compare the screen you see when you execute Compress to the following illustration:

3. About PC Tools Deluxe



The features available from the Compress screen are explained in the following section:

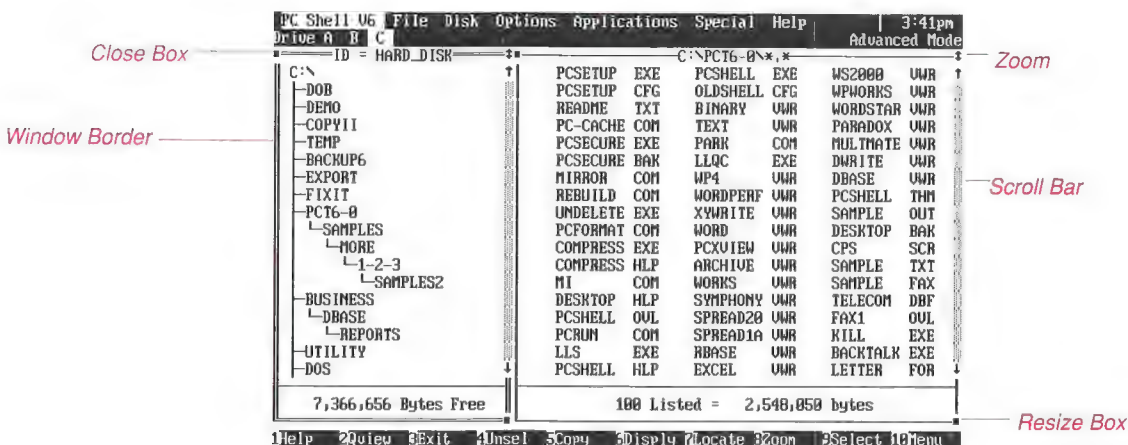
Horizontal Menu Bar: is the bar across the top of the screen containing the names of pull-down menus available with each application, the program name (for example, Compress) displayed in the upper-left corner, and the on-line Help command for quick answers and guidelines. Selecting Help from the menu bar or pressing F1 provides help that is relevant to the current context of the application.

Drive Line: is displayed directly under the horizontal menu bar. The drive line displays the available drives in the system with the current drive highlighted. The number of drives displayed will be the maximum allowed by DOS unless the LASTDRIVE command is used in the CONFIG.SYS file.

Message Bar: is the bar across the bottom of the screen containing messages to guide you through using the PC Tools Deluxe application. When highlighted function keys appear on the bottom line, the associated commands can be invoked by pressing the function key or positioning the mouse cursor on any portion of the command or highlighted key and clicking the mouse. In order to provide as many functions as possible on the Message Bar, the commands have been abbreviated and the "F" as in Function key has been eliminated. For example, to begin Compress just press F4 or click anyplace on "4Begin" with the mouse; this will begin disk

compression. The commands disappear when the bottom line contains help messages.

Application window: contains the information for the application you are working on. The window shown in the following illustration is from PC Shell.



Most windows contain the following features:

Close Box: used with the mouse to “close” (or put away) a window.

Window Border: used to indicate the active window. The top border of the active window is used with the mouse to move the window. When a window is “active” it means that keystrokes and mouse actions apply to that window. A window has a highlighted double-lined border if it is active and a single-lined border if it is not active.

Resize Box: used with the mouse to resize the window. This may not be present in all windows as all windows are not resizable.

Scroll Bar: used with the mouse to move, or “scroll” through the information displayed in the window. This may not be present in all windows.

Zoom: used with the mouse to expand the active window to full screen size.

3. About PC Tools Deluxe

Using the Mouse



PC Tools Deluxe fully supports and can be used with either your keyboard or a Microsoft (or compatible) Mouse.

The pull-down menu approach to choosing and executing commands, along with the overlapping window approach for displaying an application's information makes using PC Tools Deluxe much easier with a mouse.

Note: In order to use a mouse, its driver must be installed in your AUTOEXEC.BAT or CONFIG.SYS file before PC Shell. Please see your mouse manual for more information.

The following table describes basic mouse techniques:

Note: The right mouse button is also supported in PC Tools Deluxe programs. If you are left-handed, you can exchange the left mouse button functions for the right by installing a program with the /LE parameter.

To	Do This
Position the Mouse Pointer	Move the mouse; the mouse pointer on the screen mirrors the motion of your hand.
Click	Move the mouse to the desired selection. Press and release the left or right mouse button.
Double-click	Move the mouse to the desired selection. Quickly press and release the left or right mouse button twice.
Drag	Hold down the left or right mouse button and move the mouse. Release the mouse button on the desired selection.
Select	Position the mouse pointer on what you want to select and click the left or right mouse button once.

Choosing Commands

Each application has its own set of commands to perform specific tasks, organized in pull-down menus on the horizontal menu bar. For example, PC Shell has several commands at the Intermediate User Level for performing functions on disks as illustrated:



In addition, some commonly used commands are found on the Message Bar in the PC Shell, Compress, and PC Secure applications.

☐ To choose commands from the pull-down menus:

The following procedure can be used for all applications that have commands on pull-down menus.



1. Press the first letter of the pull-down menu. For example, pressing F will pull down the File menu in PC Shell.
2. Press the highlighted letter of the command. For example, pressing D will display the Delete File dialog box in PC Shell.

Note: Alt or F10 highlights the command names on the horizontal menu bar.

or

1. Press the first letter of a menu name to pull down the menu and display the commands.
2. Use the Up/Down arrow keys to move within a menu, and the Right/Left keys to move across menus.
3. Press ENTER to select the command you want.



1. Position the mouse pointer on the menu name you want and click. This pulls down the menu and displays the available commands.
2. Position the mouse pointer on the command you want and click.

or

1. Position the mouse pointer on the menu name you want.
2. Press and hold the mouse button as you move it to the command you want. You are dragging the mouse as you do this.
3. Release the mouse button on the desired command. If you change your mind and don't want to make a menu selection, drag the mouse pointer outside the menu and release the mouse button.

To choose commands from a pop-up menu:

Some PC Tools Deluxe applications may also include commands on pop-up menus, or menus that are displayed when you choose a command that has this symbol (♦) to the right of its name on the pull-down menu. For example, choosing the Setup Configuration command on the Options menu in PC Shell will display an additional set of commands on another menu.



Use the following method to choose commands from the pop-up menu:



1. Press the first letter of the pull-down menu. For example, pressing O will pull down the Options menu in PC Shell.

2. Press the highlighted letter of the command. For example, pressing C will display the Setup Configuration pop-up menu in PC Shell.
3. Press the highlighted letter of the command you want. For example, pressing U will display the Change User Level dialog box in PC Shell.

or

1. Press the first letter of a menu name to pull down the menu and display the commands.
2. Use the Up/Down arrow keys to move within a menu, and the Right/Left keys to move across menus.
3. Press ENTER to select the command you want.



1. Position the mouse pointer on the menu name you want and click. This pulls down the menu and displays the available commands.
2. Position the mouse pointer on the command you want and click. This displays the pop-up menu.
3. Position the mouse pointer on the command you want from the pop-up menu and click.

or

1. Position the mouse pointer on the menu name you want.
2. Press and hold the mouse button as you move it to the command you want. You are dragging the mouse as you do this.
3. Release the mouse button on the desired command. When you release the mouse button, the pop-up menu appears. If you change your mind and don't want to make a menu selection, drag the mouse pointer outside the menu and release the mouse button.

To choose commands from the Message Bar:

The Message Bar is a dynamically changing bar located at the bottom of the screen in PC Shell, Compress, and PC Secure. The following illustration shows PC Shell's Message Bar:



1Help 2View 3Exit 4Unsel 5Copy 6Disply 7Locate 8Zoom 9Select 10Menu

The Message Bar contains help messages and commands depending upon what functions are being performed and which window is active. When commands appear on the Message Bar, choose them as follows:



- Press the specified function key. For example, pressing F1 displays a context-sensitive help message.

or



- Click on the command name on the bottom line with the mouse. For example, clicking on "Exit" quits PC Shell.

To close the menu without choosing a command:

If a command has not been selected you can clear the menu. To do this



- Press ESC or F3.

or



- Click the mouse anywhere outside the pull-down menu.

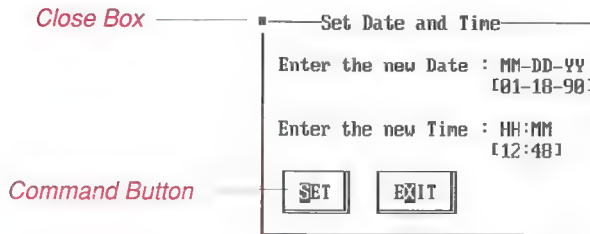
Using Dialog Boxes

PC Tools Deluxe displays dialog boxes when a program requires additional information to carry out a command or needs to give you a message. A dialog box is similar to a window, appearing over the top of any existing windows.

Command Dialog Boxes

Command dialog boxes require you to provide additional information, or select options, or both. For example, the Set Date and

Time dialog box in PC Shell allows you to enter the correct information.



Command buttons: carry out the action according to its name. Dialog boxes frequently have at least two command buttons: "EXIT" and "OK" or the name of the function itself, in this case, "SET."

Exit: ignores any changes to the settings you may have made and closes the dialog box. The Exit button lets you explore a dialog box without committing yourself to any changes.

Close box: used with the mouse to close the dialog box.

If there are multiple command buttons in a dialog box, use any of the following methods to choose one:

❑ To select command buttons in a dialog box:



- Press the **TAB** key to highlight a button, then press **ENTER**. To reverse the direction of the **TAB** key in a dialog box, press **SHIFT-TAB**.

or

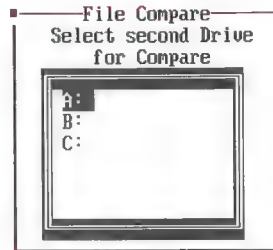
- Press **ALT** - letter (where letter is the highlighted letter in the button).

or

- Just press the highlighted letter to select the button.
- Click on the appropriate button.



In addition, some dialog boxes, like the File Compare dialog box from PC Shell below, contain drive selection boxes.



PC Shell remembers the drive selection you make in drive selection dialog boxes so that the next time you use the dialog box, the drive you selected previously is already highlighted.

❑ To select options in a drive selection box:

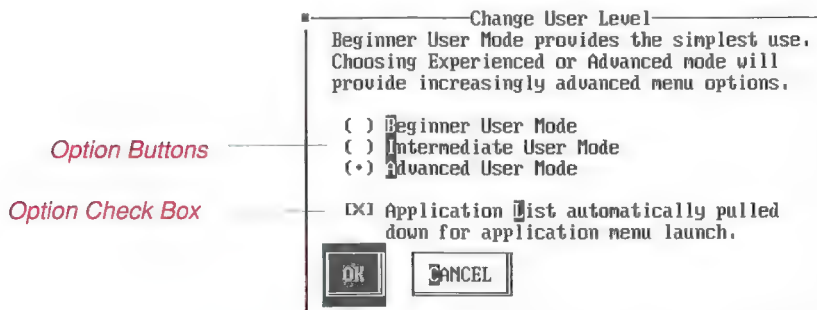


- When the drive selection box is highlighted, press the letter of the drive you want, or use the Up and Down arrow keys to select a drive and then press ENTER. The command will begin execution as soon as you select a drive.



- Click on the drive letter with the mouse. The command will begin execution as soon as you select a drive.

Other dialog boxes have Option buttons and/or Option Check boxes that toggle settings or options on and off. The Change User Level dialog box in PC Shell is a good example of this.



Option Check boxes: These buttons can be identified by the bracket characters []. You can select multiple items if they appear in a list, and each selected item will have the "X" in the box. You can make selections in Option check boxes with the keyboard or the mouse.

Press the highlighted letter of the option you want or click the option check box with the mouse to turn the setting on or off.

Option buttons: These buttons can be identified by the parenthesis characters (). They enable you to pick from a variety of options by selecting one option. Selecting any one option turns off all other options in the same group. (This is similar to the operation of car radio buttons.)

Note: Unlike similar option buttons where you can select only one option among the group, a dialog box with numbers next to the options allows you to combine options by typing additional numbers.

☐ To select an option among a group of option buttons:



- Type the number (or highlighted letter) corresponding to the option you want to select. The selection is indicated by a bullet appearing in the parenthesis (•).

or

1. Press the Up and Down arrow keys to move within the group of option buttons.
 2. When the desired selection is highlighted, press ENTER. This switches off any other option buttons within the group.
- Click the desired option button in the parenthesis to make the selection. This switches off the other option buttons within the group.



Message Dialog Boxes

Message dialog boxes contain messages and confirmation buttons so you can respond to the message. For example, if you select a drive that does not contain a disk when using PC Shell, you will see the following message box:



A message dialog box contains the following parts:

Message: displays what the program needs to tell you.

Confirmation button: provides a way to dismiss the message box after you have read the message.

You must respond to the message by selecting a confirmation button. This closes the message box.

□ To respond to the message:

- Press **ENTER** to select the highlighted button, or **ESC** or **F3** to dismiss the message box.
- Click on the confirmation button, or click on the close box (if there is one) to dismiss the message box.

If there are multiple options, use the **TAB** key to highlight a button then press **ENTER**, or press **ALT - LETTER** (where letter is the highlighted letter in the button), or just press the highlighted letter to select the button. If you are using a mouse, simply click on the appropriate button.

Getting Help

You can get help a number of ways while using PC Tools Deluxe. Context-sensitive Help messages are available on the bottom line Message Bar or you can choose the Help Text command from the Help menu on the Horizontal Menu Bar for more information.

Bottom Line Help

The messages on the bottom line change frequently to reflect your place in the program and provide additional information about the features available to you. If you are unsure what a certain pull-down menu item does, watch the Message Bar change dynamically with a short description as you highlight command names. For example, the following illustration shows the bottom line help message when you select the Disk Info command from the Disk menu in Advanced User Mode in PC Shell.

Display all information about the specified disk

Help Text

When you choose Help from the Help Menu or press the **F1** key you will receive the appropriate help screen for the task.

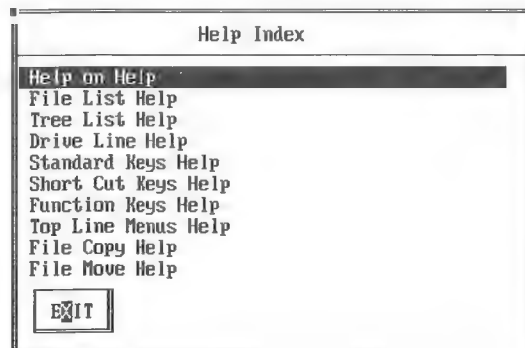
For example, the following help dialog box appears for the Search Disk command in PC Shell, giving you information for the function you are using or your current place in the application. If the Help text does not all fit in the dialog box window, you can scroll new text into the box using the keyboard or the mouse.



Help Index

You can also get an index to the available help messages for the program you are working on.

- Select the Help Index for information on other features in the application. The Help Index for PC Shell (shown below) appears in the dialog box so you can select an entry.



PC Shell

PC Shell is a powerful utility program which provides all the critical DOS maintenance commands in an easy-to-use window environment. It includes copy, move, delete, and compare file functions, as well as the following advanced features:

- Changeable user levels
- Optional DOS command line
- The ability to configure PC Shell to suit your needs
- Full mouse support throughout PC Shell
- User definable function keys
- The ability to run applications from PC Shell
- Advanced recovery of deleted files
- Reorganization of subdirectories (Prune and Graft)
- Mapping of memory-resident programs
- Formatting system and data disks
- The ability to view files in their native formats
- The ability to send files and faxes
- Advanced file locating, viewing, and launching capabilities

- Complete file and disk editing
- Standard network-compatible DOS functions supported on Novell's NetWare and IBM PC LAN

Note: *Each networked PC running PC Shell must be covered under a license agreement.*

This section of the book contains the following chapters:

- Starting PC Shell
- PC Shell's Display
- Configuring PC Shell to Meet your Needs
- Running Programs from PC Shell
- Locating, Viewing, Launching Files: Examples
- Managing Files
- Locating Files
- Viewing Files
- Editing Files
- Using PC Shell with a Laptop Computer
- Telecommunications Services
- Disk Functions
- Managing Directories
- Determining Your System Configuration

4. Starting PC Shell

PC Shell may be started in two different ways: non-resident mode or TSR mode. Non-resident mode is the same as running a standard DOS program. TSR mode is a memory-resident mode that allows you to run PC Shell from other programs.

We recommend that you install PC Shell resident (rather than non-resident mode) because it gives you these advantages:

- PC Shell takes as little as 10K of memory when not in use.
- You can hotkey into PC Shell even when running other programs.
- You can run programs from PC Shell even if you hotkey into PC Shell from another program.

If PC Shell is installed resident, it can also be run in non-resident mode just like any other program.

Starting PC Shell in Non-Resident Mode

Running PC Shell in non-resident mode is like running any other DOS program; just type `PCSHELL` at the DOS prompt. The screen will clear and the main PC Shell screen will come up.

***Note:** If you want PC Shell to come up reading a specific drive, follow the `PCSHELL` command with the drive letter. For example, `PCSHELL B:` would bring up PC Shell with drive B selected on the Drive Line.*

If you are using PC Shell in non-resident mode, turn to the section entitled “PC Shell Parameters” in this chapter to see a list of PC Shell parameters.

Starting PC Shell in Resident Mode

If you want to be able to enter PC Shell from PC Tools Desktop (which is handy if you want to locate or copy files), then PC Shell needs to be installed resident before PC Tools Desktop. We suggest that you use Install to copy your PC Tools Deluxe files to your hard disk. It places the file names in your `AUTOEXEC.BAT` file in the suggested order.

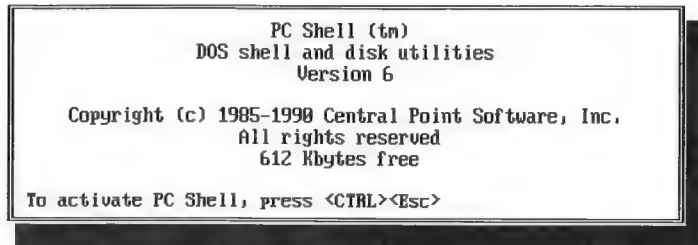
4. Starting PC Shell

- ❑ To run PC Shell in resident mode, type the following at the DOS prompt:

```
PCSHELL /R
```

This starts the memory-resident version.

Wait a moment for PC Shell to load into memory, then the following is displayed on your screen:



The PC Shell sign-on screen displays the following information:

- The program name and version number
- The current memory available to other programs
- The hotkeys used to call up the program

Using the Hotkey

A “hotkey” is used to call up a memory-resident program. You may press the default hotkey (CTRL - ESC) to activate PC Shell at any time, after it is loaded as a memory-resident program. When you are done using Shell and want to return to your underlying application, just press the hotkey again. You do not have to press ESC or Exit from PC Shell. Using the hotkey is much faster.

Running PC Shell memory resident will allow you to bring it up while other programs are running by pressing the CTRL-ESC hotkey. For example, if you were working in your word processor and wanted to save a file to a unformatted floppy disk, you could hotkey into PC Shell and format the disk, copy the file, then hotkey out of PC Shell, and continue where you left off.

PC Shell requires as little as 10k of memory when inactive. Once the program is activated by the hotkey, it saves a portion of your computer's memory to disk. It then brings in the rest of PC Shell and executes. When you put PC Shell away, it restores your computer's

memory to its original state and returns control to the underlying program.

Changing the Hotkey

You can change the default hotkey from CTRL - ESC to CTRL - Fn (where "n" is a selected function key, F1 through F10). This is useful if another program is already using the CTRL - ESC hotkey sequence.

❑ To change the PC Shell hotkey:

- Before starting PC Shell, type (at the DOS prompt, or insert this in your AUTOEXEC.BAT file):

```
PCSHELL/R/Fn
```

(where "n" is a selected function key, F1 through F10)

Using Expanded Memory

Shell uses expanded memory (EMS) when it is resident and active only. When you hotkey into PC Shell, it will automatically save the image of the underlying application into expanded memory, if available. If EMS memory is insufficient or non-existent, then the image is placed in PCSHELL.THM, and this file is placed wherever PCSHELL.OVL is located. The expanded memory is freed when you hotkey out of PC Shell. PC Shell needs approximately 230 kilobytes of expanded memory to run. You also must have your expanded memory driver installed in your CONFIG.SYS file before loading PC Shell.

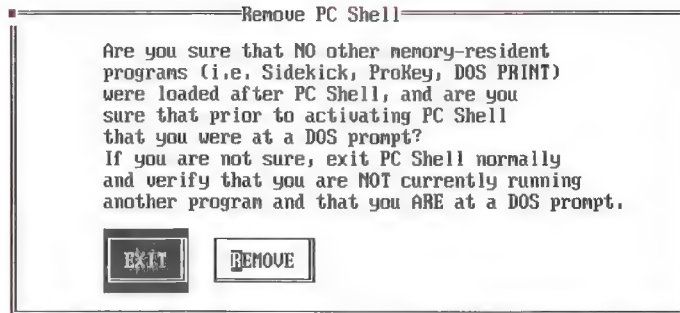
The other PC Shell overlay files do not use expanded memory because these files are permanently allocated and would require permanent use of expanded memory while PC Shell is installed.

Removing PC Shell from Memory

When running in memory-resident mode, PC Shell can be removed from memory two ways.

- Choose the Remove PC Shell command from the Special pull-down. The following message appears:

4. Starting PC Shell



***Note:** PC Shell must be the last TSR loaded and have been hotkeyed into at the DOS prompt before it may be removed from memory. If it is not, this dialog box will display a message telling you to remove any TSRs loaded after PC Shell.*

- Select Remove to remove PC Shell from memory.

Or PC Shell can also be removed from memory at the DOS prompt by using the following command:

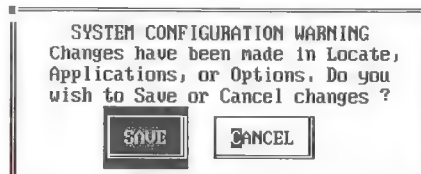
KILL

This command also removes PC Tools Desktop (plus BACKTALK and the LapLink Quick Connect driver, if it is present) from memory as long as no other non-PC Tools TSRs were loaded after them.

Exiting PC Shell

The easiest way to exit PC Shell is to press the CTRL-ESC hotkey, which immediately exits PC Shell, without your having to close any windows, and enables you to hotkey back in right where you left off.

***Note:** If you make any configuration changes during your session in PC Shell, PC Shell asks you if you want to save them before you hotkey out:*



- Select Save to save the changes and Cancel if you don't want to save the changes.

You can also exit PC Shell using one of the following methods:

- Choose Exit PC Shell from the File pull-down menu.

or

- Press the F3 key.

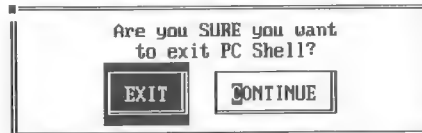
or

- Press the ESC key.

or

- Click on "Exit" on the Message Bar.

If no configuration changes have been made, the Exit box appears to confirm your decision.



Choose Exit to quit PC Shell. Select Continue to remain in PC Shell.

PC Shell Files

PC Shell uses several files so you have the flexibility of running in resident mode or non-resident mode, or in both modes at the same time, and still maintain program compatibility:

Files used in both non-resident and resident modes

PCSHELL.EXE	PC Shell Program
PCSHELL.HLP	Help File
PCSHELL.CFG	Configuration File (saves changes in screen size, colors, customized menus, etc.)
PCSHELLd.TRE	Tree Window storage (created by PC Shell) where "d" refers to drive letter (used only on networked drives)
PCSHELL.OVL	Program overlay
*.VWR	Viewer Files

Files used in resident mode only

PCSHELL.IMG	Program image (created by PC Shell)
PCSHELL.THM	Swapped memory area (created by PC Shell)
PCRUN.COM	Runs programs in resident mode
PCSHELL.RMG	Program image (created by PC Shell)

Note: The PCSHELL.THM file will be created and deleted on the disk when hotkeying in and out of PC Shell. The PCSHELL.CFG file saves any changes you make to the default PC Shell settings. For example, if you add programs to the Applications menu, PC Shell saves this configuration in the .CFG file. Don't delete the PCSHELL.CFG file or you will lose your special settings.

Files used in non-resident mode only

PCSHELL.IMX	Program image (created by PC Shell)
-------------	-------------------------------------

When you execute PC Shell, it looks for its files in the following order:

- If you are using DOS 3.0 or higher, it looks in the directory from which PC Shell was executed; then
- it scans the directories in the path statement. If not found
- it looks in the PCTOOLS subdirectory. If not found
- it looks in the root directory.

PC Shell Parameters

You can set some of the following settings when you run Install, or they may be added to the command line when executing PC Shell from the DOS prompt or your AUTOEXEC.BAT file.

If you use the "drive" parameter, it must be the first parameter and must be preceded by a space. The space, however, is optional for all other parameters. You may use as many parameters as you wish on the command line, and the order and case (upper or lower) of the parameter is unimportant. Any "illegal" or invalid parameters are ignored.

Option	Description
--------	-------------

Drive:

If you want PC Shell to come up reading a specific drive, follow the PCSHELL command with the drive letter and a colon. For example, PCSHELL B: brings up PC Shell with drive B selected on the Drive Line.

/350

Displays in 350 line resolution if you have a VGA display. This makes the background screen and the scroll bars in PC Shell continuous, but it may have the effect of reducing the size of the screen on some VGA adapters. This parameter also works with PC Secure.

/BW

Starts PC Shell in black and white mode. This will result in a better screen display when using a color card with a monochrome monitor. Can be used in either non-resident or resident mode.

/DQ

When you hotkey into PC Shell, it must save the memory being used by the currently running program in a disk file before it can load its program file into memory. This naturally takes time. To make Shell load faster, it will not save memory when it is hotkeyed into from the DOS prompt because there is no program running.

If you experience any problems when you hotkey into PC Shell from the DOS prompt, use the /DQ parameter when you install PC Shell to disable the quickload capability at the DOS prompt.

/FF

Disables screen "snow" suppression on CGA monitors. Normally, PC Shell suppresses video "snow" on CGA monitors so that your video display is sharper. This may slow scrolling on some monitors. If you have a CGA monitor and don't mind minor flickering, or "snow" on your screen, install PC Shell with the /FF parameter.

/Fn

Changes the default hotkey from CTRL - ESC to CTRL - Fn (where "n" is a selected function key, F1 through F10). This is useful if another program is already using the CTRL - ESC hotkey sequence. This parameter is only used in resident mode.

/LCD

Used on computers with LCD displays (usually laptops) to set the colors.

/LE

Exchanges the left and right mouse button functions to accommodate left-handed people.

/IM

Disables the mouse when using PC Shell. Use this parameter if you have an old Microsoft Mouse driver or are experiencing problems with a mouse supported application, after hotkeying out of PC Shell. Due to a lack of support in some older mouse drivers, memory-resident programs may have no way of knowing how the mouse driver was setup for a previous application. Hotkeying into and then out of PC Shell may cause the loss of mouse support in the current application. By using the /IM parameter, the mouse will be disabled in PC Shell, but keyboard functions will continue to operate normally. The mouse will not be affected in your underlying program.

***Note:** If you have problems with the mouse after entering PC Shell, it is most likely due to using an older-style driver. You can use the /IM parameter, but we recommend that you contact your mouse manufacturer to get an upgrade.*

/IN

If you have a Hercules InColor card and want to run PC Shell resident and in color, use the /IN parameter. If you do not use the /IN parameter, PC Shell will come up in black and white mode. When running PC Shell in non-resident mode with an InColor card, PC Shell will come up with its normal colors.

/PS2

If you are having problems with your mouse not appearing (especially if you are running within Microsoft Windows), use the PS/2 parameter to reset the mouse upon reentering PC Shell.

SET PCTV=/BW or /LCD

Install sets an environment variable so that PC Shell uses the appropriate colors on black and white or LCD systems. Once set, all other PC Tools Deluxe programs will use this variable. Install places the variable in your AUTOEXE.BAT file during installation, or you can type it at the DOS command line.

/R

The /R parameter designates the amount of "resident" memory PC Shell uses and has the following options (representing four sizes):

/RTINY or /RT or /R	approximately 10K of resident memory
/RSMALL or /RS	approximately 117K of resident memory
/RMEDIUM or /RM	approximately 155K of resident memory
/RLARGE or /RL	approximately 235K of resident memory

The resident memory size is the amount of memory PC Shell uses when it is not active. The reason you might want to change the /R parameter from the default 10K setting is to make PC Shell faster: both when hotkeying in and out and when running other programs from PC Shell. The trade off in using a small amount of memory is speed: the lower the /R number, the less memory must be swapped in and out. PC Shell can achieve such small numbers because it contains a "virtual memory manager" that moves memory to disk when it is not needed. The speed of memory swapping depends upon the speed of your hard drive. If you have a fast hard drive, the smaller numbers are recommended. If you have a slow hard drive, you may want to use one of the higher numbers.

The advantage of memory swapping is that you can free up almost all of PC Shell's memory for other programs; the disadvantage is that there is a slight delay when hotkeying into and out of, or running programs from PC Shell. We have provided these four settings so that you can pick the option that works best on your computer to optimize response time and use memory most efficiently.

***Note:** If you have EMS memory, PC Shell will use it instead of your hard disk. You can use the /RT parameter and have the best of both worlds: speed and maximum conventional memory.*

/Od

Selects a different drive to contain the PC Shell overlay files (PCSHELL.OVL, PCSHELL.IMG, PCSHELL.THM). The PC Shell overlay files are always on disk, and normally, PC Shell uses the default drive to build its overlay files. This can be changed, forcing the program to build the files on another drive, such as a RAM disk. When running PC Shell resident, the image file (PCSHELL.IMG) is created and deleted in the same place as the other overlay files. Building the overlay files on a RAM disk may help speed up program execution.

There must be enough space available on the RAM disk to hold the overlay files, or PC Shell will not run. The required space depends on the /R parameter, as shown in the table below. The size of the PCSHELL.THM file depends on the type of display you are using. The sizes in the table reflect an EGA display. If you are using a VGA display, the file size will be approximately 20 kilobytes larger.

File Sizes in Bytes				
PC Shell	/RT	/RS	/RM	/RL
PCSHELL.OVL	236,192	236,192	236,192	236,192
PCSHELL.IMG	230,465	121,168	82,096	0
PCSHELL.THM*	6,032	6,032	6,032	4,000
PC SHELL.THM**	255,800	146,500	102,000	4,000
Totals*	472,689	363,392	324,320	240,192
Totals**	722,457	503,860	420,288	240,192

- * Reflects file sizes when hotkeying into PC Shell from the DOS prompt.
- ** Reflects file sizes when hotkeying into PC Shell while running another program. (The size of the .THM depends upon the size of the application you are swapping out of memory. Although if the program is large, PC Shell will only swap out the value set aside by the /A parameter.)

If you also have expanded memory, PC Shell automatically loads the PCSHELL.THM file to it, even if you have used the /O parameter.

/A (Active memory size)

This parameter determines the amount of memory PC Shell uses while it is active in resident mode (when you have hotkeyed into it). The minimum /A option is 235K. The maximum /A option is (approximately) the total amount of memory in your computer minus 235K. (This amount depends upon what other TSRs you use, what version of DOS, and so on.)

The format for this parameter is

/Annn

where nnn is a number greater than 235K. For example,

/A240

will allocate 240K for PCSHELL when it is active.

The default setting of the /A parameter (the setting used if you don't increase it) is 235K. The only reason to change it is to give more room to PC Shell when it is active. For example,

copying a disk on a single drive will take fewer swaps. We recommend that you use the default setting, unless you will be using PC Shell for many single floppy disk operations.

In order to change the /A setting, you need to unload PC Shell from memory, then re-install it with the /A setting you want.

***Note:** If you use /RL with /A, the amount of resident memory used by PC Shell when it is non-active will equal the /A setting.*

Insufficient Memory

While using PC Shell, if you receive a message indicating insufficient memory, exit PC Shell, remove the program from memory using the KILL command and reinstall using the /A parameter with a larger number. You can also add the /A parameter to PC Shell in your AUTOEXEC.BAT file.

/TRn

The first time that you run PC Shell on a network drive, it reads the directory tree for the current drive and saves a copy of it in the file PCSHELLd.TRE, where "d" is the drive letter. Thereafter, PC Shell reads the directory tree from this file rather than from the disk. This makes PC Shell faster when switching drives on networks.

This parameter tells PC Shell to do a Re-read the Tree every "n" days. If "n" is 0, PC Shell reads the directory information from the disk and rebuilds the tree display every time it's run; if "n" is 1, it rebuilds the tree display every day, or as soon thereafter as PC Shell is run; if "n" is 7, it rebuilds the tree display every week. The default is 1.

***Important:** There are circumstances when PC Shell cannot detect changes made to subdirectories or files (such as after running the PC Tools Compress program or after changes to a file in Hex/Edit); consequently, the tree display will be inaccurate. To update the tree display, choose Re-Read the Tree from the Options menu.*

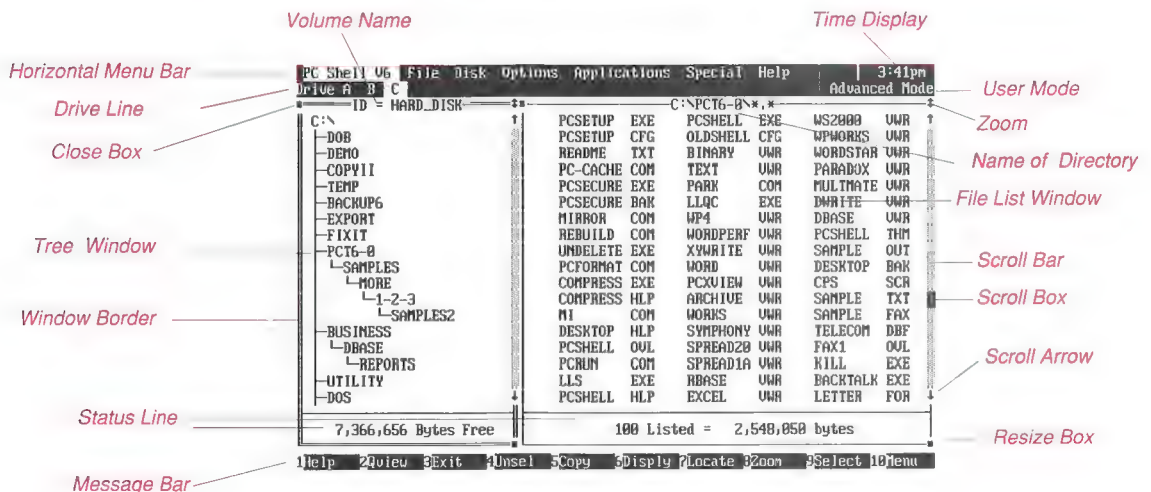
5. PC Shell's Display

PC Shell offers you complete flexibility in displaying your files and directories and complete control over configuring the way you see this data.

This chapter explains the many ways you can display data in PC Shell: in a one File and Tree Window (the default), a two File and Tree Window, a View Window, a Locate Window.

The PC Shell Screen

The following illustration shows the default screen configuration (one Tree and File List Window):



The features available from the PC Shell screen are briefly explained in the following section, while the major regions of the screen are described in more detail following this section.

Volume Name: appears in the top border of the Tree Window. This indicates the name of the current volume.

Horizontal Menu Bar: is located across the top of the screen. The horizontal menu bar displays the names of the available pull-down menus:

File: commands for file functions.

Disk: commands for disk functions.

Options: PC Shell configuration options.

Applications: executable program list.

Special: memory and disk maps, etc.

Help: context-sensitive help and index to Help.

Drive Line: is displayed directly under the horizontal menu bar. The drive line displays the available drives in the system with the current drive highlighted. The number of drives displayed will be the maximum allowed by DOS unless the LASTDRIVE command is used in the CONFIG.SYS file.

Close box: used with the mouse to “close” (or put away) a window.

Tree Window: is the window displayed on the left side of the screen. The Tree Window displays a graphic tree of the subdirectories on the selected drive. The current DOS directory is highlighted. A vertical scroll bar is located on the right side of the window.

***Note about Tree Display on Networks:** If you are connected to a Novell network and you use PC Shell to look at the network server, it will only display directories in the tree window for which you have at least read privileges. This makes PC Shell much easier to use on a network as you only see the directories you use, rather than all the directories (potentially hundreds) on the server.*

Window Border: used to indicate the active window. The top border of the active window is used with the mouse to move the window. When a window is “active” it means that keystrokes and mouse actions apply to that window. A window has a highlighted double-lined border if it is active and a single-lined border if it is not active.

Status Line: is the line below both the Tree Window and File List Windows. The Status Line in the Tree Window shows the number of unallocated bytes on the disk. The Status Line in the File List Window shows the number of files in the directory and how many bytes they comprise. When you have selected files, the Status Line in the File List Window changes to show the number of files selected and how many bytes they comprise. In addition, when you hold down the right mouse button and drag the mouse over files, you will see the Status Line in the File List Window change to show the

highlighted file's name, size, date and time last modified, and attributes.

Message Bar: is located at the bottom of the screen. It is used to provide additional information, keystroke options, commands, and help suggestions. This line changes frequently to reflect where you are in the PC Shell program and which window is active. When highlighted function keys appear on the bottom line, the associated commands can be invoked by pressing the highlighted key(s) or positioning the mouse cursor on any portion of the command or highlighted key and clicking the mouse. In order to provide as many functions as possible on the Message Bar, the commands have been abbreviated and the "F" as in Function key has been eliminated. For example, to activate the Horizontal Menu Bar just press F10 or click anyplace on "10Menu" with the mouse. The function keys are user-definable (except F1-Help, F3-Exit, and F10-Menu, which are PC Shell System Function keys) so that you can assign a function key of your choice to your most frequently used commands. The commands disappear when the bottom line contains help messages.

Resize Box: used with the mouse to resize the window. This may not be present on all windows.

Scroll Arrow: used with the mouse to move through the display. Clicking on a scroll arrow moves the display incrementally. Clicking and holding down on the scroll arrow scrolls the display continuously.

Scroll Box: used to scroll to a specific part of the application. For example, dragging the scroll box to the middle of the scroll bar displays the middle of the application's data.

Scroll Bar: used with the mouse to move, or "scroll" through the information displayed in the window. This may not be present in all windows.

File List Window: is the window displayed on the right side of the screen. The File List Window displays the files selected in the Tree Window. A vertical scroll bar is located on the right side of the window.

Name of Directory: appears in the top border of the Tree Window and shows the name of the directory being displayed.

Zoom: used with the mouse to expand the active window to full screen size. You can also use the Zoom the Current Window command on the Options menu.

User Mode: is located under the Time Display in the upper-right corner of the screen. User Mode displays which mode (Beginner, Intermediate, or Advanced) you are in. The commands available on each of the menus depend upon which mode you are using. Advanced mode is the default.

Time Display: is located in the top right corner of the horizontal menu bar. Time displays the current system time.

Using the Right Mouse Button in PC Shell



In addition to the basic mouse techniques, PC Shell supports the right mouse button as follows:

To	Do This
Select files	Press the right mouse button and position the highlight bar over the first file you want to select, then press and hold down the left mouse button. Drag the highlight bar over any additional files you want to select. As the files are selected they are highlighted and numbered. Release both mouse buttons.
Unselect files	Press the right mouse button and position the highlight bar over the first file you want to unselect, then press and hold down the left mouse button. Drag the highlight bar over any additional files you want to unselect. As the files are unselected the highlight and numbers are removed. Release both mouse buttons.
Scroll through the Tree Window, File List, Locate, or View Windows	Position the right mouse button in the window you want to scroll and drag the mouse to the top or bottom of the display.

Note: If you are left-handed, you can exchange the functions of the left and right mouse buttons by starting PC Shell with the /LE parameter.

Drive Line/User Level

The line directly under the Horizontal Menu Bar contains the Drive Line in the upper left side of the screen and the User Mode in the upper right side. The Drive Line displays the available drives in the system with the current drive highlighted. User Mode displays which mode (Beginner, Intermediate, or Advanced) you are in. Choosing the Change User Level command on the Setup Configuration pop-up menu enables you to select the user mode you wish to work in. The commands available on each of the menus depend upon which mode you are using. Advanced mode is the default.

Changing Drives

You can select and change drives using one of three methods:

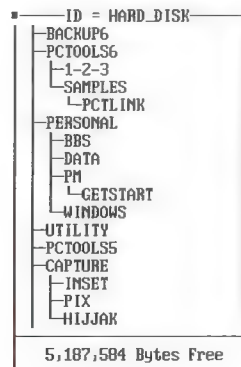
- Choose the Change Drive command from the Disk pull-down menu.
- or
- Press Ctrl - Drive Letter to select a drive using the keyboard. For example, CTRL - A selects drive A.
- or
- On the Drive Line, click on the desired drive letter with a mouse.



Drive A B C

The Tree Window

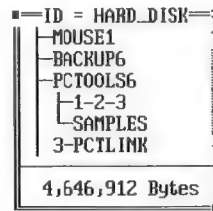
The Tree Window is the window displayed on the left side of the screen. It displays a graphic tree of the subdirectories on the selected drive.



5. PC Shell's Display

You can use the Resize box to resize the window larger or smaller, or use the Zoom feature to expand the Tree Window to fill the screen. A vertical scroll bar is located on the right side of the window to scroll through the Tree Window with the mouse or keyboard. You can also use the right mouse button to quickly scroll through the list. The Status Bar at the bottom of the Tree Window shows the number of bytes free on the current drive.

If you have several levels of subdirectories in a Tree Window and you resize it, the subdirectory level will be indicated by a number. For example, the following screen shows how the PCTLINK subdirectory is displayed in a small window:



Tree Display on Networks

If you are connected to a Novell network and you use PC Shell to look at the network server, it will only display directories in the Tree Window for which you have at least read privileges. This makes PC Shell much easier to use on a network as you only see the directories you use, rather than all the directories (potentially hundreds) on the server.

Re-Reading the PC Shell Tree on Networks

PC Shell saves a copy of the directory tree for a drive in the file PCSHELLd.TRE, where "d" is the drive letter. For example, PCSHELLC.TRE contains the directory tree for drive C; PCSHELLF.TRE contains the directory tree for drive F; and so on. When you tell PC Shell to change drives (with the Change Drive command, or by pressing CTRL-drive letter, or clicking on the drive letter on the Drive Line), it looks for a tree file for that drive, and if it finds one, reads the tree from the file rather than from the drive itself. This makes PC Shell faster when switching drives, especially on networks.

If you want PC Shell to reread the drive because the directory structure has changed, for example, you have renamed, moved,

resorted, etc. the directory, choose Re-Read the Tree from the Options menu.

The File List Window

The File List Window is the window displayed on the right side of the screen. It displays the files in the active PC Shell directory, selected in the Tree Window.

C:\PCTOOLS6*,*					
PHONE	DBF	WORKS	UWR	ZIPVIEW	UWR
PHONE	REC	SYMPHONY	UWR	ARCVIEW	UWR
PHONE	FOR	SHEET20	UWR	PCSHELL	OUL
WORK	TM	SHEET1A	UWR	PCSHELL	EXE
PCSHELLC	TRE	ABASE	UWR	PHONE	TEL
DESKTOP	CFG	EXCEL	UWR	MCI_MAIL	SCR
LIST	FOR	WORDPERF	UWR	MCI_FAX	SCR
LIST	DBF	WS2000	UWR	ESL_FAX	SCR
LIST	REC	WPWORKS	UWR	ESL_MAIL	SCR
PCSHELL	IMG	WP4	UWR	DBMS	OUL
PCSHELLE	TRE	WORDSTAR	UWR	DESKTOP	EXE
PCSHELL	CFG	TEXT	UWR	ARCHIVE	UWR
README	TXT	PARADOX	UWR	INSTALL	BAT
UPDATE	BAT	MULTIMATE	UWR	SHEETS	UWR
XYWRITE	UWR	DWRITE	UWR	PCRUN	COM
WORD	UWR	DBASE	UWR	WORK	TXT
PCXVIEW	UWR	BINARY	UWR	HEXCALC	TMP
148 Listed = 2,394,965 bytes					

You can use the Resize box to resize the window larger or smaller, or use the Zoom feature to expand the File List to fill the screen. A vertical scroll bar is located on the right side of the window to scroll through the File List with the mouse or keyboard. You can also use the right mouse button to quickly scroll through the list.

The Status Bar at the bottom of the File List Window shows the number of files in the list and how many bytes they comprise. When you have selected files, the Status Line in the File List Window changes to show the number of files selected and how many bytes they comprise. In addition, when you hold down the right mouse button and drag the mouse over files, you will see the Status Line change to show the highlighted file's size, date and time last modified, and attributes.

File Display Options

The File Display Options command found on the Modify Display pop-up menu on the Options menu allows you to specify how the files are displayed and sorted in the File List Window.

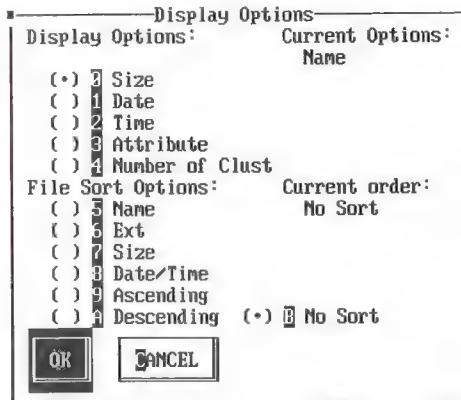
☐ To display files differently:

1. Choose the File Display Options from the Modify Display pop-up menu on the Options menu, press F6, or click on the

5. PC Shell's Display

Display command on the bottom line (if you haven't changed it).

PC Shell displays the Display Options dialog box.



Note: The Current display Options are listed on the top right of the dialog box.

2. Select any of the following options from the Display Options dialog box. You may select more than one option.

Size: displays the file size.

Date: displays the file date.

Time: displays the file time.

Attribute: displays the file attributes.

Number of Cluster: displays the number of clusters for that file.

Note: Changing the first five options (0-4) affects the size of the File List Window if a View Window is on and in vertical orientation. (It makes the File List larger than the Tree Window.)

The current sort order is listed in the dialog box. You can choose a different File Sort Order from the following list. With each sort order, you may also choose if you want the sort to be ascending or descending. The default display is for no sorting to occur.

Name: lists the files according to their names.

Ext: lists the files according to their extensions.

Size: lists the files according to their size.

Date/Time: lists the files according to their date and time.

Ascending: lists the files according to the options specified, in ascending order.

Descending: lists the files according to the options specified, in descending order.

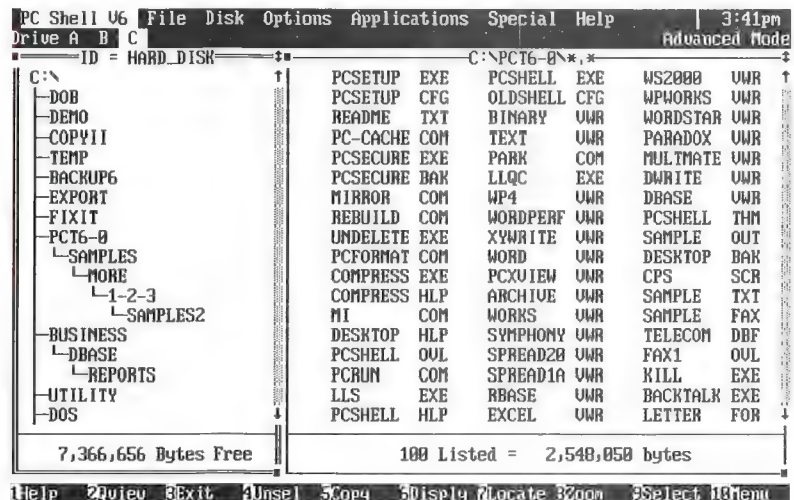
No Sort: no sorting occurs. The files are listed in the order they occur in the directory.

3. Select OK to view the files with the selected display and list order or Cancel to disregard the selected options and return to the main PC Shell screen.

Note: To save the File List Window for subsequent PC Shell sessions, use the Save Configuration File command in the Options menu.

One List Display

The One List Display is the default window configuration, showing you one Tree Window and one File List Window.

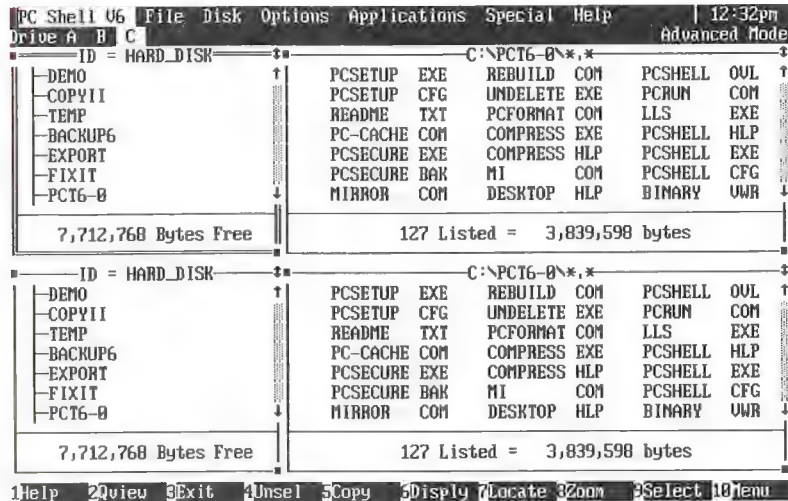


Two List Display

The Two List Display command on the Modify Display pop-up menu on the Options pull-down menu opens a second set of Tree and File List Windows for another drive or directory. This is helpful when

5. PC Shell's Display

copying or moving files from one drive or directory to another or when comparing files on different drives or in different directories.



❑ To open a second set of windows:

1. Choose the Two List Display from the Modify Display pop-up menu on the Options pull-down menu.

or

1. Press the INSERT key.

PC Shell opens a second set of Tree and File List Windows.

Short Cut: To open a second set of windows and read another drive quickly, press CTRL-ALT-DRIVE LETTER (where Drive letter is the other drive you want to read).

2. From either of the Tree windows, select the second subdirectory for which you want to display files.

or

From the Drive Line, select a new drive letter.

or

Choose the Change Drive command from the Disk menu. PC Shell displays Tree and File List Windows for the new drive or subdirectory.

Note: To save the Two List Display for subsequent PC Shell sessions, use the Save Configuration File command on the Options menu.

❑ To remove the second set of windows:

- Choose the One List Display from the Modify Display pop-up menu.
- or
- Click on the Close box in either display with the mouse.
- or
- Press the DELETE key. The second set of Tree and File List Windows disappears.



Note: To save the One List Display for subsequent PC Shell sessions, use the Save Configuration File command on the Options menu.

❑ To hide windows:

By hiding windows, you can see the information displayed on the underlying screen plus whatever commands you have defined on the bottom line and the DOS Command Line if you have it turned on:

- Choose the Hide Windows command from the Options menu.

With windows hidden, you can have access to any of the pull-down menus on the Horizontal Menu Bar by clicking at the top of your screen (in the area the Horizontal Menu Bar *would* be located), by pressing F10 or ALT, or by clicking on "Menu" on the Message Bar.

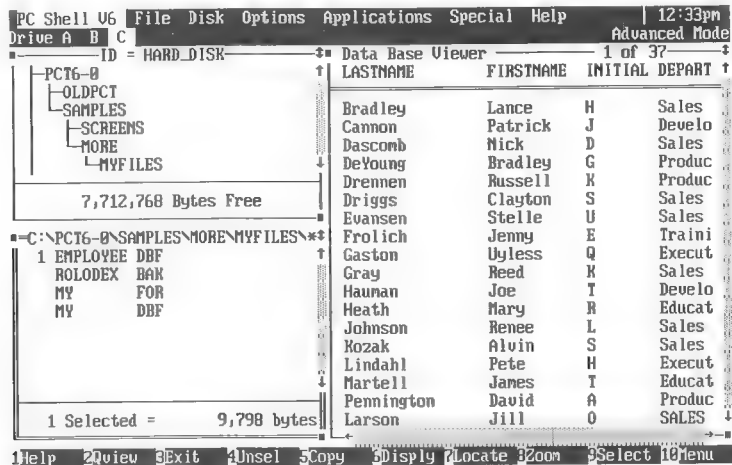
To show the windows again, choose the Show Windows command in this mode.

The View Window

A file can be displayed in its native format in the optional View Window.

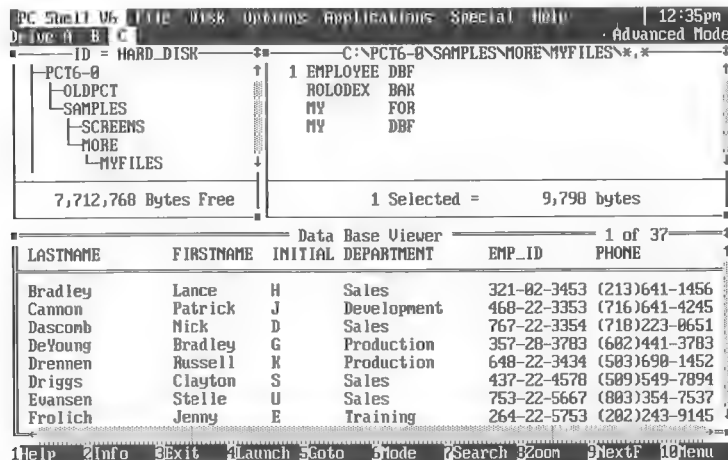
When you pull down the Options menu and turn the View Window option ON, the first selected file, or highlighted file if none are selected, is displayed in the View Window:

5. PC Shell's Display



This orientation enables you to view files in a large View Window, yet continue to have the Tree and File List Windows displayed on the left.

The orientation of the View Window can be changed from vertical (as in the previous illustration) to horizontal (as the following illustration shows) by choosing the Viewer Cfg. command on the Setup Configuration pop-up menu:



This illustration shows a dBASE file in a database viewer. PC Shell has viewers to display the files generated by most database, spreadsheet and word processing applications.

The following file types can be displayed in their native format.

Database Viewers

Paradox files
 dBASE files
 FoxBASE files
 R:BASE files
 Clipper files
 dBXL files
 Microsoft Works files

Miscellaneous Viewers

ARC files
 Binary files
 PCX files
 PKZIP files
 PAK files
 LHARC files
 ZOO files

Spreadsheet Viewers

Lotus 1-2-3 files
 Lotus Symphony files
 Microsoft Works files
 Microsoft Excel files
 Borland Quattro files
 Mosaic Twin files
 Words and Figures files
 MultiPlan files
 VP Planner Plus files

Word Processor Viewers

Text files
 Desktop Notepads files
 XyWrite files
 WordStar files
 WordPerfect files
 Microsoft Word files
 WordStar 2000 files
 DisplayWrite files
 MultiMate files
 Microsoft Works files
 Microsoft Windows Write files

Changing the Default Viewer

If a file is not associated with one of the above viewers, it is displayed in the Binary Viewer if it has the extension .COM, .EXE, .OBJ, .BIN, or .SYS and in the Text Viewer if it has the extension .TXT or .BAT. All other files are displayed in the viewer chosen as the default viewer.

The current default viewer appears to the right of "Default Viewer" on the Options menu. Default Viewer toggles between the Binary Viewer and the Text Viewer: if the Binary Viewer is showing as the default viewer and you choose Default Viewer, the Text Viewer becomes the default viewer.

- Choose Default Viewer from the Setup Configuration pop-up menu on the Options menu.

See the "Viewing Files" chapter for more information on viewers.

5. PC Shell's Display

Zooming the View Window

The View Window (as well as the File List Window, Tree Window, and Locate Window) can be zoomed so that it fills the screen by choosing the Zoom command or using the Zoom feature in the upper right corner of the window. The following illustration shows a zoomed View Window:

PC Shell V6 File Disk Options Applications Special Help						
EMPLOYEE.DBF Data Base Viewer 1 of 32 5:18pm						
LASTNAME	FIRSTNAME	INITIAL	DEPARTMENT	EMP_ID	PHONE	S
Bradley	Lance	H	Sales	321-02-3453	(213)641-1456	C
Cannon	Patrick	J	Development	468-22-3353	(716)641-4245	C
Dascomb	Nick	D	Sales	767-22-3354	(718)223-0651	C
DeYoung	Bradley	G	Production	357-28-3783	(602)441-3783	A
Drennen	Russell	K	Production	648-22-3434	(503)698-1452	C
Driggs	Clayton	S	Sales	437-22-4578	(509)549-7894	C
Evansen	Stelle	U	Sales	753-22-5567	(803)354-7537	C
Frolich	Jenny	E	Training	264-22-5753	(202)243-9145	A
Gaston	Dyless	Q	Executive	798-07-5336	(213)649-2455	A
Gray	Reed	K	Sales	427-57-4532	(212)638-9345	C
Hauman	Joe	T	Development	412-67-8864	(605)295-8880	A
Heath	Mary	R	Education	518-84-5538	(312)312-4556	C
Johnson	Renee	L	Sales	141-42-5233	(502)697-6564	C
Kozak	Alvin	S	Sales	118-23-7658	(312)537-5430	C
Lindahl	Pete	H	Executive	897-45-4453	(717)749-5422	A
Martell	James	T	Education	118-56-5453	(413)627-5952	C
Pennington	David	A	Production	357-65-3555	(716)375-3568	C
Larson	Jill	O	SALES	101-02-3383	(402)555-9974	C

1 Help 2 Info 3 Exit 4 Launch 5 Goto 6 Edit 7 Search 8 Unzoom 9 NextF 10 Menu

When you have a zoomed View Window, the viewed file name appears in the upper left corner of the screen. Select Zoom from the Message Bar and the screen will return to its size before you zoomed it.

Notice that viewer specific functions (as well as all pull-down menu commands) are available from the bottom line Message Bar when View is the active window. By pressing and holding down the ALT key, you can see and use any of the standard PC Shell function keys on the bottom line.

All pull-down menu commands are available by pressing F10 to activate the Horizontal Menu Bar or by clicking and pulling down the menu with the mouse.

Quick File View

If you plan to do a lot of file viewing, it is recommended that you turn on the View Window; however, if you occasionally view files, use the Quick File View command from the File menu. Quick File View shows the selected files, or if no files are selected, the highlighted file, in a zoomed View Window.

The Locate Window

When you use the Locate File command from the File menu, located files are displayed in another window, the Locate Window. Locate File can find a specific file or files with similar names and extensions, such as your word processing or database files, no matter where they are on your drive. Locate File searches the entire drive or a selected directory according to your file specifications. If you use Locate File to find certain files on a regular basis, you can save the file specifications under a name, called a search group, and in future locates, select the name rather than reentering the file specifications. Locate File also has a search option which allows you to locate files containing specific characters, such as a word or phrase.

For example, if you locate all of your Lotus 1-2-3 files that contain the word "advertising," the Locate Window may appear as follows:

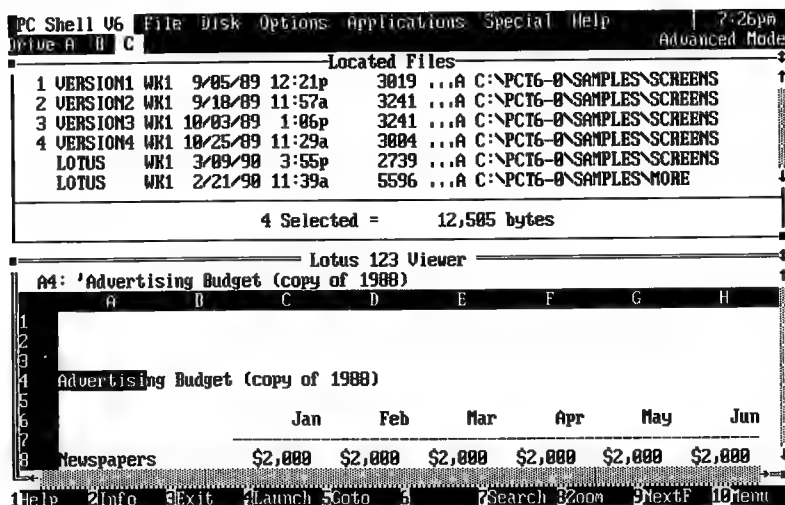
PC Shell V6 File Disk Options Applications Special Help 12:36pm									
Drive A B C									
Located Files									
SKIPPIES	WK1	6/08/89	4:54p	8236	...	C:\COPYII			
LOTUS	WK1	3/09/90	3:55p	2739	...	C:\PCT6-0\SAMPLES			
UP-PLAN	WK1	3/09/90	3:50p	7159	...	C:\PCT6-0\SAMPLES			
SKIP2	WK1	6/05/89	7:10p	2722	...	C:\PCT6-0\SAMPLES\SCREENS			
SKIPPIES	WK1	6/06/89	10:42a	2531	...	C:\PCT6-0\SAMPLES\SCREENS			
VERSION1	WK1	9/05/89	12:21p	3019	...	C:\PCT6-0\SAMPLES\SCREENS			
VERSION2	WK1	9/18/89	11:57a	3241	...	C:\PCT6-0\SAMPLES\SCREENS			
VERSION3	WK1	10/03/89	1:06p	3241	...	C:\PCT6-0\SAMPLES\SCREENS			
VERSION4	WK1	10/25/89	11:29a	3004	...	C:\PCT6-0\SAMPLES\SCREENS			
LOTUS	WK1	3/09/90	3:55p	2739	...	C:\PCT6-0\SAMPLES\SCREENS			
LOTUS	WK1	2/21/90	11:39a	5596	...	C:\PCT6-0\SAMPLES\MORE			
11 Listed = 44,227 bytes									
1Help 2View 3Exit 4Unsel 5Copy 6Display 7Locate 8Zoom 9Select 10Menu									

Once the files are in the Locate Window, you can use the commands available on the Message Bar or from the pull-down menus: Copy, Move, Delete, View, etc. You can also launch an application from the Locate Window the same way you can from the File List Window. For example, if Lotus 1-2-3 is on the PC Shell Applications menu associated with files with the .WK1 extension, pressing CTRL-ENTER or double-clicking on the file name with the mouse will launch 1-2-3 and load into 1-2-3 the selected or highlighted .WK1 file in the Locate Window.

You can also view the contents of files listed in the Locate Window by selecting the View Window; this opens up a View Window in the bottom half of the screen. In addition, if you specified search text

5. PC Shell's Display

with the locate, the first occurrence of the search text is highlighted when you activate the viewer. In this example, a Lotus 1-2-3 file VERSION1.WK1 is displayed with the word "advertising" highlighted:



By activating the View Window, you can scroll through the viewed file. In addition, if the View Window was on before you started Locate, it will automatically be on after Locate.

If you view files only occasionally, a quicker way to view is to choose the Quick File View command from the File menu. This opens the selected files, or highlighted file if none are selected, in a zoomed View Window:

PC Shell V6 File Disk Options Applications Special Help 12:37pm							
VERSION1.WK1 Lotus 123 Viewer							
A1: Advertising Budget (copy of 1988)							
	A	B	C	D	E	F	G
1							
2							
3							
4		Advertising Budget (copy of 1988)					
5							
6			Jan	Feb	Mar	Apr	May
7							Jun
8		Newspapers	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
9							
10		Magazines	\$200	\$200	\$200	\$200	\$200
11							
12		Trade fairs	\$9,000	\$0	\$0	\$8,000	\$0
13							
14		Radio Promotions	\$500	\$500	\$500	\$500	\$500
15							
16		Totals	\$11,700	\$2,700	\$2,700	\$11,500	\$2,700
17							
18							
19							
20							
	1 Help	2 Info	3 Exit	4 Launch	5 Goto	6	7 Search 8 Unzoom 9 NextF 10 Menu

There is more information about using Locate File in the "Locating Files" chapter.

The Active Window

You can have more than one window open at once, but you can work in only one window at a time, the active window. The active window is indicated by a highlighted, double-lined border; all other windows have a single-lined border. When you have a Tree Window, File List, and Locate or View Window open, you can use the following technique for selecting the active window:



- Press the TAB key to activate the windows in a clockwise direction. Press SHIFT-TAB to activate the windows in a counter-clockwise direction.
- Click in the window you want to activate.

Resizing and Moving Windows

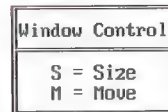


You can resize and move PC Shell's windows (Tree, File List, Locate, and View) to suit your needs.

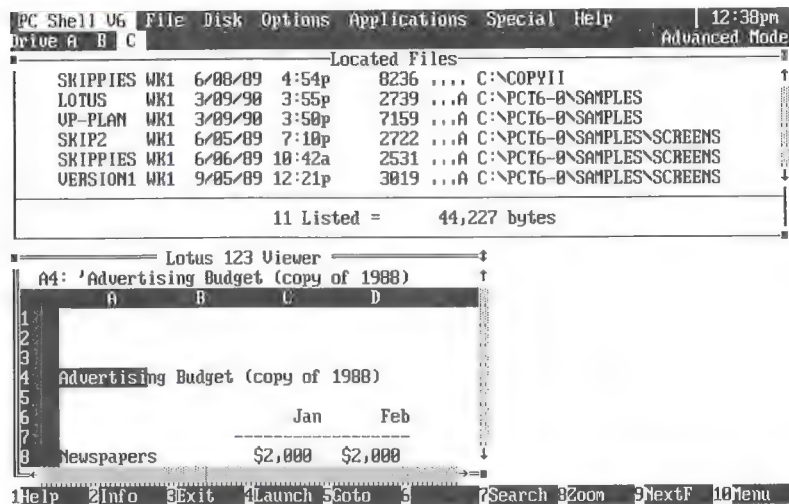
❑ To resize a window:

1. Make the window active that you want to resize by pressing TAB or SHIFT-TAB.
2. Select the Size/Move Window command from the Options menu or press the ALT-SPACEBAR keys.
The Window Control dialog box appears:

5. PC Shell's Display



3. Select the Size command or just press S.
4. Use the Up, Down, Left or Right arrow keys to resize the window. In the following example, the upper left corner remains in the same place while the lower right corner moves.



5. Press ENTER when the window is the size you want. Press ESC or F3 to exit.

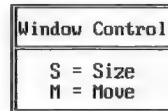


1. Click the mouse in the window you want to resize.
2. Position the mouse pointer on the Resize Box in the lower-right corner. If there is no Resize Box, the window cannot be resized.
3. Click and then drag the Resize Box to resize the window. The upper-left corner remains in the same place while the lower-right corner moves.
4. Release the mouse button.

□ To move a window:



1. Make the window active that you want to move by pressing TAB or SHIFT-TAB.
2. Select the Size/Move Window command from the Options menu or press the ALT - SPACEBAR keys.
The Window Control dialog box appears:



3. Select Move or just press M.
4. Use the Up, Down, Left or Right arrow keys to reposition the window.
5. Press ENTER when the window is where you want it. Press ESC or F3 to exit.

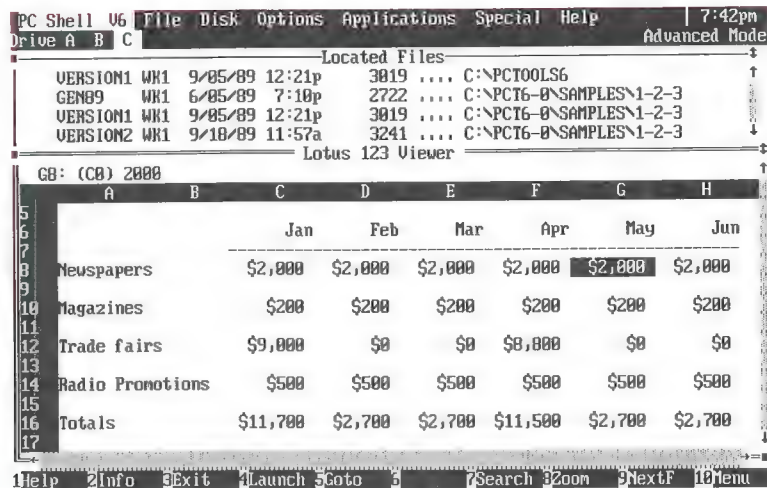


1. Click the mouse in the window you want to move.
2. Position the mouse pointer on the top window border (but not in the Close Box).
3. Click and then drag the window to reposition it.
4. Release the mouse button.

Note: If you want to resize the Tree Window and File List Window to their default sizes, press the DELETE key. For example, if you have resized the File List Window and want to return to the default configuration, press DELETE.

In general, a window is moved after it has been resized. In the following example the Locate and View Windows have been both resized and moved:

5. PC Shell's Display



Resizing by Zooming

You can quickly resize windows using the Zoom the Current Window command on the Options menu or the Zoom feature in the upper right corner of the active window. Zoom enables you to change the active window from a smaller-sized window to full screen display (and back again) with just a keystroke or click of the mouse button.



1. Make the window active that you want to zoom by pressing TAB OR SHIFT-TAB.
2. Choose Zoom the Current Window from the Options menu. If the window is small when you choose Zoom the Current Window, it is expanded to fill the screen.

or

- Press the F8 key.



1. Click the mouse in the window you want to zoom.
2. Position the mouse pointer on the Zoom Feature in the upper right corner of the window.
3. Click the mouse button.

```

PC Shell 06 | File Disk Options Applications Special Help | 7:43pm
VERSION1.WK1 Lotus 123 Viewer
GB: (C8) 2000

      A          B          C          D          E          F          G          H
-----
Advertising Budget (copy of 1988)

      Jan          Feb          Mar          Apr          May          Jun
-----
Newspapers    $2,000    $2,000    $2,000    $2,000    $2,000    $2,000
Magazines      $200      $200      $200      $200      $200      $200
Trade fairs    $9,000      $0        $0        $8,800      $0        $0
Radio Promotions  $500      $500      $500      $500      $500      $500
Totals        $11,700    $2,700    $2,700    $11,500    $2,700    $2,700

Help  Info  Exit  Launch  Goto  Search  Zoom  NextF  Menu

```

If you want to resize the window, choose **Zoom the Current Window** again or click the **Zoom Feature**. The window is automatically resized to the size and position you last saved.

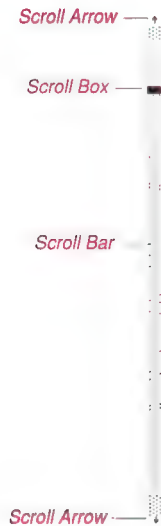
Scrolling in Windows

Sometimes the entire contents of a window cannot be displayed in the available window space. Scrolling allows you to move through and view the entire contents of the Tree, File List, Locate, or View Windows. You can use the keyboard or the mouse to scroll in all of the windows.



- Use the Up and Down arrow keys to scroll up or down one line at a time and the Right and Left arrow keys to scroll horizontally.
- Use the PGUP or PGDN key to move up or down one window at a time or the HOME or END keys to go to the beginning or end of the display.
- Press the right mouse button and drag the mouse anywhere inside the window you wish to scroll. As the mouse moves, the highlight bar moves. Moving the mouse to the top of a window scrolls it up, and moving the mouse to the bottom of the window scrolls it down, or
- Use the scroll bars:





Scroll Bars: used to scroll in a window as follows:

Scroll Arrows: clicking on a scroll arrow moves the display incrementally. Clicking and holding down on the scroll arrow scrolls the display continuously.

Scroll Box: used to scroll to a specific part of the application. For example, dragging the scroll box to the middle of the scroll bar displays the middle of the application's data.

- Click on the scroll arrow to scroll incrementally a line at a time.
or
- Click and hold the left mouse button on the scroll arrow to scroll continuously.
or
- Click in the scroll bar to indicate the approximate place in the list you want to display. For example, point and click half way down the scroll bar to view the middle section of the list. Using the scroll bar enables you to position more precisely.
or
- Drag the scroll box to the approximate place in the list you want to display.

6. Configuring PC Shell to Meet your Needs

In addition to displaying your data in various windows, and moving and resizing those windows, you can decide what user mode you want to work in, enabling you to have more or fewer commands available. You can turn on or off several optional settings, changing the way PC Shell looks and works. You can also add applications, bulletin board services, and information services to the Applications menu for quick access.

What's more, once you have configured PC Shell the way you want, you can save these settings for subsequent PC Shell sessions by using the Save Configuration File command on the Options menu. (This command saves all of the information you select from the Options menu as well as your applications list and file locator search groups.) If you don't remember to save your settings, anytime you exit PC Shell you will be reminded that you made changes to your configuration settings and you will be asked if you want to save those settings.

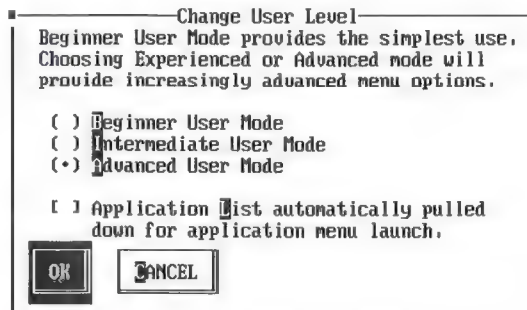
Selecting the User Level

PC Shell enables you to customize your work environment by selecting a user level to work in. The number of commands available on each menu is determined by user level.

Password Protection

If you are responsible for configuring PC Shell for others, you may wish to configure PC Shell with a password protected user level. When you install PC Shell, you are given the option of selecting a user level for PC Shell and password protecting it so that others need the password if they want to change the user level. At the same time, you can password protect the selection of function keys. See the “Defining Function Keys” section for more information.

1. Choose the Setup Configuration command from the Options menu. The pop-up menu appears.
2. Choose the Change User Level command.
The following dialog box appears:



3. Select from one of the following user modes:

Beginner User Mode: offers basic, simple DOS command functions.

Intermediate User Mode: offers more complex functions.

Advanced User Mode: offers all of the functions available in PC Shell.

In addition, you can select the following:

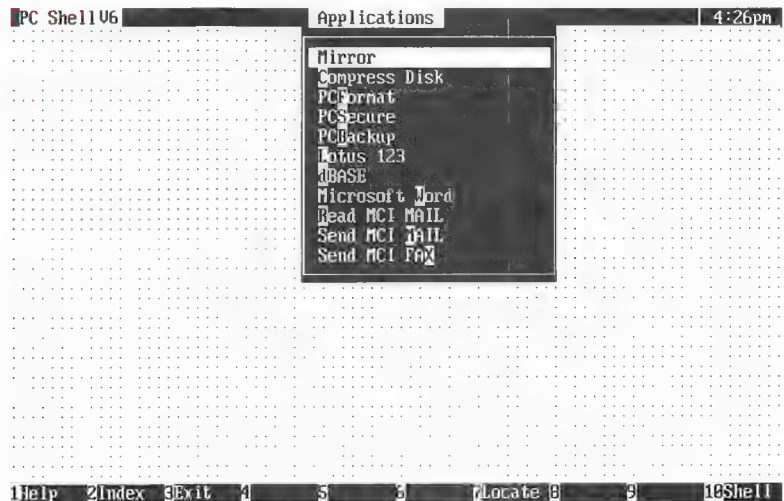
Application List Mode: when you want to use PC Shell primarily as an application launcher.

4. Click OK to close the dialog box and save your selection.

Application List Mode

If you want to use PC Shell primarily to launch applications, you can configure Shell in its Application List Mode option.

In this mode, you can see only PC Shell's Application List.



From this mode you can locate files and launch the associated programs from PC Shell's Applications menu; you can also enter PC Shell by pressing F10 or clicking on "Shell" on the bottom line.

When you click on Shell or press F10, you will be in the user level you selected, with the full Horizontal Menu Bar active. Pressing F3 or ESC will ask you if you want to exit PC Shell, select Exit to put you back into Application List Mode.

Beginner User Level

If you want to use PC Shell to perform routine tasks such as copying, renaming, and comparing files, then you may want to work in Beginner Mode. Beginner Mode offers the basic DOS commands, without any of the more complex functions. The Applications and Options menu are available and unchanged in all user modes. The following table illustrates the commands available from the pull-down menus in Beginner Mode:

File Menu	Disk Menu	Options Menu	Special Menu
Copy File	Copy Disk	Setup Configuration	System Info
Compare File	Compare Disk	Change User Level	LapLink/QC
Rename File	Change Drive	DOS Command Line	Remove PC Shell
Locate	Format Data Disk	Wait on DOS Screen	
Quick File View	Make System Disk	Background Mat	
Launch	Directory Maint	Viewer Cfg.	
Exit PC Shell	Add a subdirectory	Default Viewer	
		Screen Colors	
		Date/Time	
		Define Function Keys	
		Modify Display	
		Tree/Files Switch	
		Two List Display	
		One List Display	
		Active List Switch	
		File List Filter	
		File Select Filter	
		File Display Options	
		Unselect Files	
		Tree Window	
		File List Window	
		View Window	
		Show/Hide Windows	
		Size/Move Window	
		Zoom Current Window	
		Re-Read the Tree	
		Save Configuration File	

Intermediate User Level

If you want more functions available than in Beginner mode, but still don't need to use all of PC Shell's commands, then you may want to work in Intermediate User Mode. Intermediate User Mode offers all of the Beginner Mode commands, in addition to more complex functions such as Deleting, Editing, Searching, Printing files and disks and obtaining more information about your system. The following table illustrates the commands available from the pull-down menus in Intermediate Mode:

File Menu	Disk Menu	Options Menu	Special Menu
Copy File	Copy Disk	Setup Configuration	System Info
Compare File	Compare Disk	Change User Level	LapLink/QC
Rename File	Change Drive	DOS Command Line	Directory Sort
Locate File	Format Data Disk	Wait on DOS Screen	Remove PC Shell
Move File	Make System Disk	Background Mat	
Delete File	Directory Maint	Viewer Cfg.	
Edit File	Add a subdirectory	Default Viewer	
Text Search	Rename a subdirectory	Screen Colors	
Print File	Delete a subdirectory	Date/Time	
Verify File	Search Disk	Define Function Keys	
Print File List	Rename Volume	Modify Display	
Undelete File	Park Disk	Tree/Files Switch	
Quick File View	Verify Disk	Two List Display	
Launch		One List Display	
Exit PC Shell		Active List Switch	
		File List Filter	
		File Select Filter	
		File Display Options	
		Unselect Files	
		Tree Window	
		File List Window	
		View Window	
		Show/Hide Windows	
		Size/Move Window	
		Zoom Current Window	
		Re-Read the Tree	
		Save Configuration File	

Advanced User Level

If you want all of the functions available in PC Shell, use Advanced User Mode. The following table illustrates the commands available from the pull-down menus in Advanced Mode:

File Menu	Disk Menu	Options Menu	Special Menu
Copy File	Copy Disk	Setup Configuration	System Info
Compare File	Compare Disk	Change User Level	LapLink/QC
Rename File	Change Drive	DOS Command Line	Directory Sort
Locate File	Format Data Disk	Wait on DOS screen	File Map
Move File	Make System Disk	Short Cut Keys	Disk Map
Delete File	Directory Maint:	Background Mat	Memory Map
Edit File	Add a subdirectory	Viewer Cfg.	Remove PC Shell
Text Search	Rename a subdirectory	Default Viewer	
Print File	Delete a subdirectory	Screen Colors	
Verify File	Prune & Graft	Date/Time	
Print File List	Modify Attributes	Define Function Keys	
Undelete File	Search Disk	Modify Display	
Clean File	Rename Volume	Tree/Files Switch	
Attribute Change	Park Disk	Two List Display	
Hex Edit File	Verify Disk	One List Display	
More File Info	Disk Info	Active List Switch	
Quick File View	View/Edit Disk	File List Filter	
Launch		File Select Filter	
Exit PC Shell		File Display Options	
		Unselect Files	
		Tree Window	
		File List Window	
		View Window	
		Show/Hide Windows	
		Size/Move Window	
		Zoom Current Window	
		Re-Read the Tree	
		Save Configuration File	

Defining Function Keys

PC Shell enables you to configure the bottom line Message Bar with the commands you most frequently use and assign the function key of your choice to each command. The following illustration shows the default configuration:

1Help 2View 3Exit 4Unsel 5Copy 6Disply 7Locate 8Zoom 9Select 10Menu

Note: The F1, F3, and F10 keys are PC Shell system keys which cannot be changed; however, you may assign the other keys as you wish.

Pay attention to the bottom line Message Bar as you are using PC Shell because the functions on it will change depending upon what you are doing. For example, when using the viewers, you will have different commands depending upon which viewer you are using.

Password Protection

When you install PC Shell, you are given the option of password protecting the function key definitions so that others need the password if they want to change them.



□ To define function keys:

1. Choose Setup Configuration from the Options menu.
The Setup Configuration pop-up menu appears.
2. Choose Define Function Keys from the Setup Configuration pop-up menu.

The Define Function Keys dialog box appears:

Define Function Keys			
Current Settings:		Available Functions:	
F1 - Not Changeable	HELP	Copy File	FCOPY
F2 - Help Index	INDEX	Move File	FMOVE
F3 - Not Changeable	EXIT	Compare File	FCOMP
F4 - Reset Selected Files	RESET	Rename File	FRNAM
F5 - Disk Info	DINFO	Locate File	LOCATE
F6 - File Display Options	FDISP	Delete File	DELETE
F7 - Active List Switch	ALIST	Edit File	FEDIT
F8 - Delete File	DELETE	Search File	FSRCH
F9 - File Select Filter	FSLCT		
F10 - Not Changeable	MENU		

3. Select a function key from the Current Settings list on the left side of the dialog box. To do so, press the Up or Down arrow keys and ENTER or press the function key you want to change.

When you have chosen a setting, the Available Functions box on the right side of the dialog box is automatically highlighted and active so you can select which function you want to assign to the specified function key.

Press the TAB key to move back and forth between the two regions of the dialog box.

4. Press the Up or Down arrow keys and ENTER to scroll through the list of available functions and select the function you want to assign. (The functions are arranged in the order they appear on the menu so that all file functions are together, all disk functions are together, etc.)

Once you have made a selection, press ENTER; the Current Setting list becomes active for you to select another function key.

5. When you are done making your selections, press U (for update, which appears on the bottom line) to save your selection and close the dialog box.

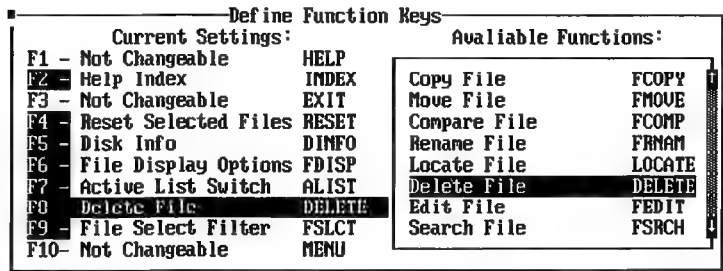
Cancel closes the dialog box without saving your changes and Reset returns the settings to the settings found in the configuration file at the start of this PC Shell session.



□ To define function keys:

1. Choose Setup Configuration from the Options menu. The Setup Configuration pop-up menu appears.
2. Choose Define Function Keys from the Setup Configuration pop-up menu.

The Define Function Keys dialog box appears:



3. Click on the function you want to change from the Current Settings list on the left side of the dialog box.

The Available Functions box on the right side of the dialog box is automatically highlighted and active so you can select which function you want to assign to the specified function key.

4. Use either mouse button to scroll through the list of available functions.
 - Drag the right mouse button to the top or bottom of the Available Functions box to scroll quickly through the list. (The functions are arranged in the order they appear on the menu so that all file functions are together, all disk functions are together, etc.) Releasing the mouse button selects the function. The Current Settings box on the left side of the dialog box is automatically highlighted and active so you can select another key.
 - With the left mouse button, scroll through the list using the scroll bar on the right side of the Available Functions box. Click on the function you want to assign a key to. Releasing the mouse button selects the function. The Current Settings box on the left side of the dialog box is automatically highlighted and active so you can select another key.
5. When you are done making your selections, click on "Update" on the bottom line to save your selection and close the dialog box.

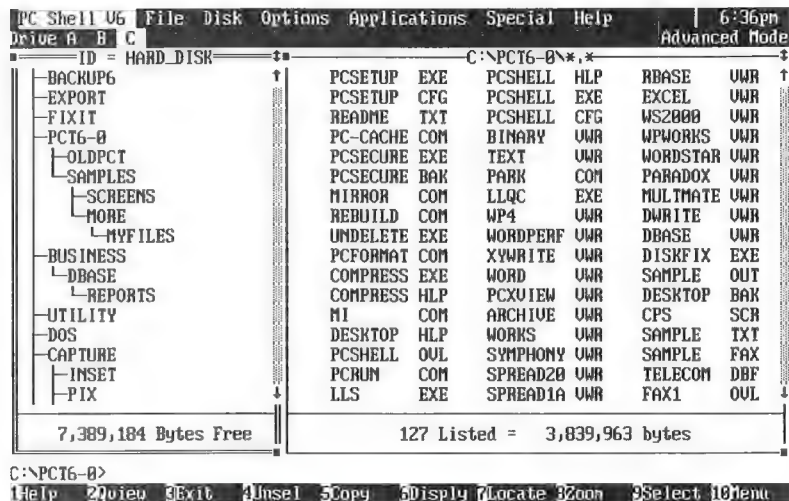
Cancel closes the dialog box without saving your changes and Reset returns the settings to the settings found in the configuration file at the start of this PC Shell session.

6. Configuring PC Shell to Meet your Needs

DOS Command Line

The DOS Command Line is an optional line where DOS commands can be entered and executed. This capability makes all DOS functionality available from PC Shell, whether PC Shell is resident or not. For example, you have PC Shell installed resident with the DOS Command Line turned on and you are in dBASE looking at a database. You then want to look at some information in a Lotus 1-2-3 spreadsheet. You can hotkey into PC Shell, run Lotus 1-2-3 from the DOS command line, and find the spreadsheet you want. When you exit Lotus 1-2-3, you will be returned to PC Shell. Exiting PC Shell returns you to dBASE where you left off.

Note: PC Shell will free up virtually all of your computer's memory before running the second program, then restore it for use by the first program when the second is done.



□ To turn the DOS Command Line on or off:

1. Choose the Setup Configuration command from the Options menu.
2. Choose the DOS Command Line option from the Setup Configuration pop-up menu.
This toggles the DOS command line and Short Cut Keys line On and Off.

Note: Either the DOS Command line or the Short Cut Key Line can be on, but not both. You can, however, turn both of them off.

❑ To wait on DOS screen:

When this setting is turned on, any command or program executed from the DOS command line pauses at the last screen and displays the following message before entering PC Shell:

Press any key or mouse button to re-enter PC Shell

Choosing Commands with the DOS Command Line

***Note:** The procedure for choosing commands with the DOS command line on remains the same with a mouse.*

When you do not have the DOS command line on, you can press the first letter of a pull-down menu to display its commands. With the DOS Command Line on, however, anything you type will be entered on the DOS command line, so you must choose commands using the following method:

1. Press ALT or F10 along with the first letter of the pull-down menu. For example, pressing ALT-F will pull down the File menu.
2. Press the highlighted letter of the command. For example, pressing D will display the Delete File dialog box.

***Note:** You can also assign a function key to your most frequently used commands so that they will be displayed on the bottom line Message Bar.*

Hiding Windows

You can hide windows, turn the DOS Command Line on and have the best of both worlds: all the functionality of DOS plus your favorite PC Shell commands in the bottom line function keys:

- Choose the Hide Windows command from the Options menu.

With windows hidden, you can use any of the pull-down menus on the Horizontal Menu Bar by clicking at the top of your screen (in the area the Horizontal Menu Bar *would* be located), or by pressing F10, ALT, or clicking on "Menu" on the Message Bar.

6. Configuring PC Shell to Meet your Needs

```
PCBDIR  EXE      13127  3-14-90   8:14a
PCSECURE HLP      7887  5-23-89   3:49p
COMPRESS CFG        4  3-13-90   4:19p
PCSECURE CFG       28  3-03-90  11:48a
PCSHELL  IMG    256016  3-14-90  12:40p
SAMPLE   REC      455  3-13-90   8:54a
ESL      SCR     3789  2-19-90   3:34p
CALC     TMP      853  3-06-90  12:21p
CIS      SCR     3585  2-19-90   3:43p
NEW      BAK      459  3-13-90  12:44p
MY       REC      464  3-13-90   4:19p
NEW      FOR      459  3-13-90  12:49p
ROLODEX  BAK      448  3-12-90   8:12p
ROLODEX  FOR      448  3-12-90   8:26p
FIRST_NA  470      3-13-90   8:39a
DESKTOP  OVL    42832  3-13-90   8:37a
DESKTOP  IMG     8000  3-13-90   8:56a
EMPLOYEE REC     1071  3-13-90   8:43a
EMPLOYEE FOR      751  3-13-90   8:43a
MY       FOR      459  3-13-90  12:52p
BACKUP6  EXE   305852  3-14-90   8:23a
130 File(s) 7944192 bytes free
```

C:\NCT6-0>

1Help 2Qview 3Exit 4Unsel 5Copy 6Disply 7Locate 8Zoom 9Select 10Menu

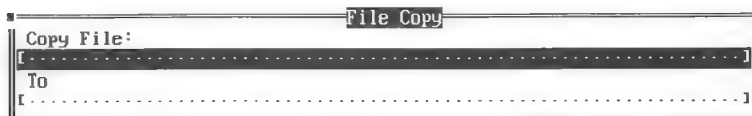
Choosing Commands with Windows Hidden

The following commands work differently when you have hidden windows:

- Copy File
- Compare File
- Rename File
- Move File
- Delete File
- Edit File
- Print File
- Verify File
- Clear File
- Attribute Change
- Hex Edit File
- More File Info

Quick File View

Choosing one of these commands in this mode will bring up a dialog box requesting the necessary information: For example,



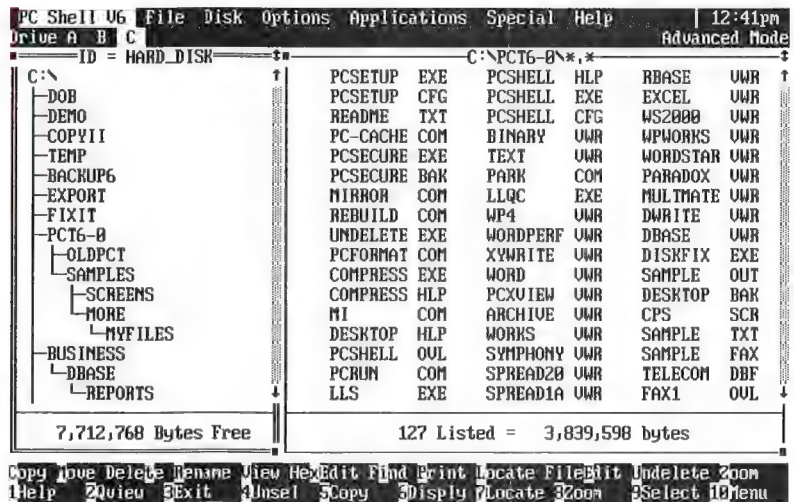
In this example, type the path and name of the file you want to copy and the path and name for the file's destination.

Recalling Past Commands

PC Shell will save the last 16 DOS commands in a special buffer so that you can go back and use them again without having to type them from the command line. If you imagine the commands in a list, pressing CTRL-left arrow moves you back through the list of commands and CTRL-right arrow moves forward.

Short Cut Keys Line

The Short Cut Keys Line is an optional line containing commonly used commands for quick and easy access. The same commands also appear on the pull-down menus. The Short Cut Keys Line is available only in advanced user mode.



During installation, Install will look for a PCSHELL.CFG file from Version 5 and install PC Shell Version 6 with the Short Cut Keys Line on so that Version 6 looks and behaves like Version 5. If you do not have a PCSHELL.CFG file from Version 5, then PC Shell is installed with the DOS Command Line on.

If the Short Cut Keys line is enabled and the user level is changed from Advanced User Level, the Short Cut Keys Line will be disabled. In addition, if you have the Short Cut Keys Line enabled when you choose the Hide Windows command, the Short Cut Keys Line will be replaced with the DOS Command Line.

Note: When you choose the Short Cut Keys option, the DOS command line is turned off and the Short Cut Keys Line is enabled and remains available in PC Shell until you turn it off. Either the DOS Command line or the Short Cut Key Line can be on, but not both. You can, however, turn both of them off.

❑ To turn the Short Cut Keys line on or off:

1. Choose the Setup Configuration command from the Options menu.
2. Choose the Short Cut Keys option from the Setup Configuration pop-up menu.
This toggles the DOS command line and Short Cut Keys line On and Off.

Choosing Commands with the Short Cut Keys Active



With the Short Cut Key Line active, you can choose commands the following ways:

❑ To choose commands from the pull-down menu:

1. Press the first letter of the pull-down menu. For example, pressing F will pull down the File menu.
 2. Press the highlighted letter of the command. For example, pressing D will display the Delete File dialog box.
1. Position the mouse pointer on the menu name you want and click. This pulls down the menu and displays the available commands.
 2. Position the mouse pointer on the command you want and click.

❑ To choose commands from the Short Cut Keys Line:

- Press the highlighted letter of the command. For example, pressing C will copy a file.
- Position the mouse pointer on the command you want on the Short Cut Keys Line and click. For example, to view a file, click on "View" on the Short Cut Keys Line.



Note: You can also assign a function key to your most frequently used commands so that they will be displayed on the bottom line Message Bar.

Background Mat

The Background Mat is a matted background pattern which covers up the underlying screen. Having the background pattern off is useful if you frequently use the DOS command line or hotkey PC Shell over applications and want to see what's displayed on the underlying screen. You can turn the background mat on or off by performing the following:

1. Choose the Setup Configuration command from the Options menu.
2. Choose the Background Mat option from the Setup Configuration pop-up menu.
This toggles the background pattern on or off.

Turning the File List Window On/Off



Turning the File List Window off is useful if you only need to see the Tree or want to see the underlying screen.

- Choose the File List Window setting on the Options menu.
This toggles the window on or off.
- If the File List Window is on, you can close it by clicking on the File List Window's close box with the mouse.

Turning the Tree Window On/Off



Turning the Tree Window off is useful if you are doing many file operations and don't want to have the Tree Window displayed.

- Choose the Tree Window setting on the Options menu.
This toggles the window on or off.
- If the Tree Window is on, you can close it by clicking on the Tree Window's close box with the mouse.

Turning the View Window On/Off



A file can also be displayed in its native format in the optional View Window.

- Choose the View Window setting on the Options menu.
This toggles the window on or off.
- If the View Window is on, you can close it by clicking on the View Window's close box with the mouse.

If the View Window is off when you turn it on, the View Window will open and the the first selected file, or highlighted file if none are selected, is displayed in the View Window.

Changing the View Window Configuration

The current View Window configuration setting is indicated to the right of the Viewer Cfg command in the Setup Configuration pop-up menu. You can change the orientation of the View Window:

6. Configuring PC Shell to Meet your Needs

- Choose the Viewer Cfg setting on the Setup Configuration pop-up menu.

This will toggle between the vertical viewer:

PC Shell V6 File Disk Options Applications Special Help 12:33pm
Drive A B C
ID = HARD_DISK
PCT6-0
OLDPCT
SAMPLES
SCREENS
MORE
MYFILES
7,712,768 Bytes Free
C:\PCT6-0\SAMPLES\MORE\MYFILES*.*
1 EMPLOYEE DBF
ROLODEX BAK
MY FOR
MY DBF
1 Selected = 9,798 bytes
1Help 2Qview 3Exit 4Unsel 5Copy 6Disply 7Locate 8Zoom 9Select 10Menu

LASTNAME	FIRSTNAME	INITIAL	DEPART
Bradley	Lance	H	Sales
Cannon	Patrick	J	Develo
Dascomb	Nick	D	Sales
DeYoung	Bradley	G	Produc
Drennen	Russell	K	Produc
Driggs	Clayton	S	Sales
Evansen	Stelle	U	Sales
Frolich	Jenny	E	Traini
Gaston	Uyless	Q	Execut
Gray	Reed	K	Sales
Hauman	Joe	T	Develo
Heath	Mary	R	Educat
Johnson	Renee	L	Sales
Kozak	Alvin	S	Sales
Lindahl	Pete	H	Execut
Martell	Janes	T	Educat
Pennington	David	A	Produc
Larson	Jill	O	SALES

and the horizontal viewer:

PC Shell V6 File Disk Options Applications Special Help 12:35pm
Drive A B C
ID = HARD_DISK
PCT6-0
OLDPCT
SAMPLES
SCREENS
MORE
MYFILES
7,712,768 Bytes Free
C:\PCT6-0\SAMPLES\MORE\MYFILES*.*
1 EMPLOYEE DBF
ROLODEX BAK
MY FOR
MY DBF
1 Selected = 9,798 bytes
Data Base Viewer 1 of 37
LASTNAME FIRSTNAME INITIAL DEPARTMENT EMP_ID PHONE
Bradley Lance H Sales 321-02-3453 (213)641-1456
Cannon Patrick J Development 468-22-3353 (716)641-4245
Dascomb Nick D Sales 767-22-3354 (718)223-0651
DeYoung Bradley G Production 357-28-3783 (602)441-3783
Drennen Russell K Production 648-22-3434 (503)690-1452
Driggs Clayton S Sales 437-22-4578 (589)549-7894
Evansen Stelle U Sales 753-22-5667 (803)354-7537
Frolich Jenny E Training 264-22-5753 (202)243-9145
1Help 2Info 3Exit 4Launch 5Coto 6Node 7Search 8Zoom 9NextF 10Menu

Note: You can, of course, select any size and configuration you wish by moving or resizing the individual windows.

To save the viewer configuration for subsequent PC Shell sessions, use the Save Configuration File command from the Options menu.

The View Window configuration also affects the Locate File command. For example, if you use the Locate File command to locate all of your .DBF files and want to view the located files, you can view them using either of the View Window configurations, as well as see the Locate Window on the screen. The following illustration shows the horizontal configuration:

PC Shell V6 | File Disk Options Applications Special Help | 7:54pm
Drive A B C | Advanced Mode

Located Files

DSKERR	DBF	8/03/89	12:14p	6798	...	C:\PCT00LS6
1 LIST	DBF	1/08/90	10:19a	26160	...	C:\PCT00LS6
2 MY	DBF	12/20/89	11:24a	1528	...	C:\PCT00LS6
3 SAMPLE	DBF	12/20/89	8:23a	864	...	C:\PCT00LS6
4 PHONE	DBF	1/08/90	1:05p	28402	...	C:\PCT00LS6
5 WORK	DBF	10/12/89	10:05a	485	...	C:\PCT00LS6

31 Selected = 147,998 bytes

Data Base Viewer 1 of 187

LAST_NAME	FIRST_NAME	TITLE	COMPANY	PHONE
Farfield	Mary	VP-Sales	ABC, Inc.	1-788-6
Masters	Andrew	President	ACME, Inc.	1-581-5
Banks	Corinne	Editor	XVZ Publishing Co.	1-222-5
Foster	Stephen	President	Music, Inc.	1-222-5
Rafferty	Robert	President	Misers, Inc.	1-876-5

1 Help 2 Info 3 Exit 4 Launch 5 Goto 6 Edit 7 Search 8 Zoom 9 NextF 10 Menu

This illustration shows the vertical View Window configuration with the Locate Window:

Changing the Default Viewer

PC Shell has viewers to display the files generated by most database, spreadsheet and word processing applications. For example, there is a 1-2-3 Viewer to display 1-2-3 files, a dBASE Viewer to display dBASE files, and a WordPerfect Viewer to display WordPerfect files. It also has a viewer to display files with the extension .PCX in graphics format, such as pictures created in PC Paintbrush.

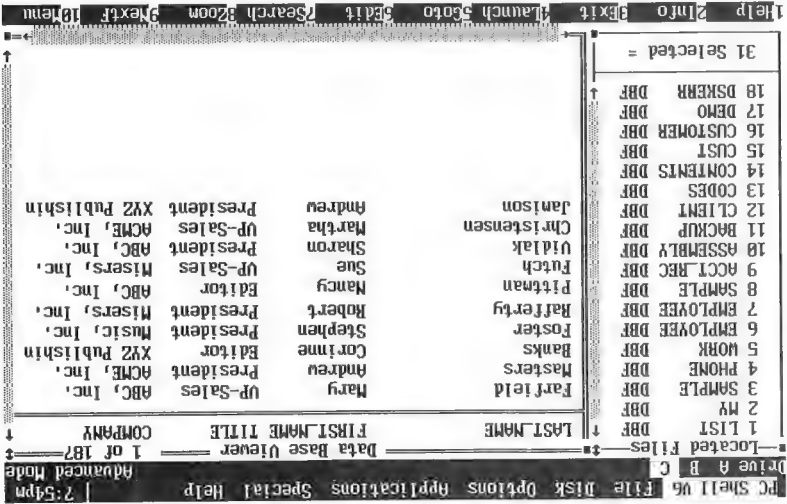
If a file is not recognized as one of the application viewers, it is displayed in the Binary Viewer if it has the extension .COM, .EXE, .OBJ, .BIN, or .SYS and in the Text Viewer if it has the extension .TXT or .BAT. All other files are displayed in the viewer chosen as the default viewer. See the "Viewing Files" chapter for more information on viewers.

Other files will be displayed in one of two default viewer configurations (Text/Binary), depending upon which you prefer. The current default viewer appears to the right of the Default Viewer command on the Options menu. Default Viewer toggles between the Binary Viewer and the Text Viewer: if the Binary Viewer is showing as the default viewer and you choose Default Viewer, the Text Viewer becomes the default viewer.

- Choose Default Viewer from the Setup Configuration pop-up menu on the Options menu.

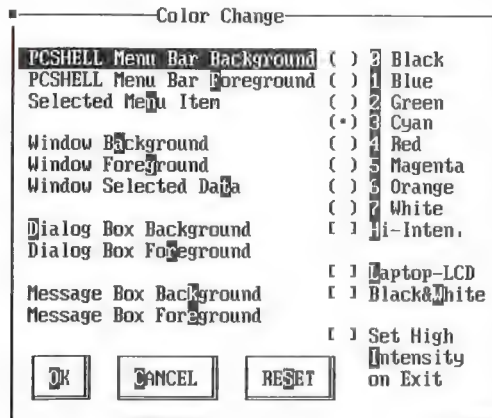
You can change the colors of various screen areas, such as the background, foreground, menu text, and dialog box text. The Screen Colors command allows you to change the screen colors to customize your display.

Changing Screen Colors



1. Choose the Setup Configuration command from the Options menu.
2. Choose the Screen Colors command from the Setup Configuration pop-up menu.
The Color Change dialog box appears.

Note: If you have a monochrome display or have set the /bw parameter this function is not available.



3. Select any of the following screen areas you want to change by pressing the highlighted letter in each selection or by clicking on the appropriate area with a mouse.

PC Shell Menu Bar Background: background color of the PC Shell menu bar.

PC Shell Menu Bar Foreground: color of text in the PC Shell menu bar.

Selected Menu Item: color of the highlighted letter in PC Shell's menu bar.

Window Background: background color of the Tree, File List Windows, and others.

Window Foreground: color of text in the Tree and File List Windows.

Window Selected Data: color of the selected files(s) in the File List Window or data in the database viewer.

6. Configuring PC Shell to Meet your Needs

Dialog Box Background: background color of the dialog boxes.

Dialog Box Foreground: color of text in the dialog boxes.

Message Box Background: background color of message boxes.

Message Box Foreground: color of text in messages boxes.

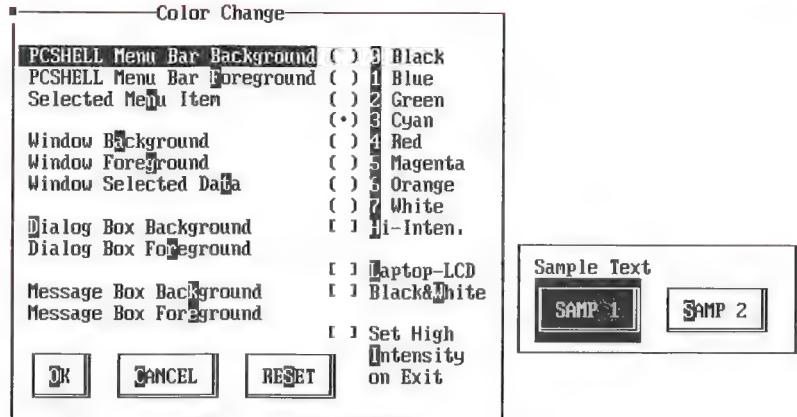
Laptop LCD: used when you wish to configure PC Shell for running on a laptop computer. Use this setting and then save PC Shell's configuration file.

Black & White: results in a better screen display when using a color card with a monochrome monitor.

Set high Intensity on exit: turns the high intensity background controller on when when hotkeying out of Shell on CGA or EGA monitors.

On color monitors which provide high intensity colors, you can have either high intensity background colors or blinking characters. PC Shell uses high intensity background and sets blinking on exit. If you hotkey into PC Shell on a CGA or EGA monitor from a program with high intensity background selected, you will have characters blinking on exit from Shell. To correct this, select the Set high intensity on exit option. This option does not affect the colors in PC Shell.

***Note:** If you select dialog or message box backgrounds or foregrounds the following sample dialog box appears showing the selected colors for you to preview.*



4. Select the desired colors from the Color Change dialog box by pressing the highlighted number or H for high intensity, or clicking on the appropriate color with a mouse.

The available colors to choose are the following:

- Black
 - Blue
 - Green
 - Cyan
 - Red
 - Magenta
 - Orange
 - White
 - Hi-Inten: high intensity video display.
5. Select OK to change the selected colors or Cancel to disregard the changes and return to the main PC Shell screen. Selecting Reset sets the default colors.

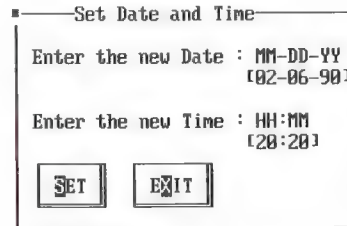
Note: To save the new colors for subsequent PC Shell sessions, be sure to save the configuration changes when you exit PC Shell.

Changing the Date and Time

The Date/Time command allows you to set the date and time on your computer's system clock.

6. Configuring PC Shell to Meet your Needs

1. Choose the Setup Configuration command from the Options menu.
2. Choose Date/Time from the Setup Configuration pop-up menu. The Set Date and Time dialog box appears.



3. Enter the new date using the MM-DD-YY format. Press ENTER to accept the new date.
4. Enter the new time using the HH-MM format.
5. Select Set to set the new date and time or Exit to end the process.

Saving your Configuration

The Save Configuration File command allows you to save all your configuration settings. This is convenient if you've changed the screen colors, added items to the Applications menu or the Locate dialog box, opened a View Window , or changed the viewer configuration, or changed other program options and you want PC Shell to remember them from session to session.

- Choose Save Configuration File from the Options menu. Your options are now saved in the configuration file PCSHELL.CFG.

7. Running Programs from PC Shell

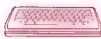
There are several ways to run programs from PC Shell, depending upon your needs.

- From the File List Window
- From the Applications Menu
- From a viewer
- From the DOS Command Line

Each of these methods is explained in this chapter.

Running a Program from the File List Window

The Launch command executes a selected program file or the application associated with a selected data file as long as the associated application is listed in the Applications menu. Program files have an extension of .EXE, .COM, or .BAT. For example, if you launch a .WK1 file and have Lotus 1-2-3 configured in your Applications menu associated with *.WK1 files, Lotus 1-2-3 will be launched. If the selected file is not a program file and there is no application associated with it, the Launch command will not work. See the next section "Adding an Application" for the procedure to configure the Application menu list.



1. Select a file in the File List Window.
2. Choose the Launch command on the File menu.

or

- Press CTRL-ENTER.

or

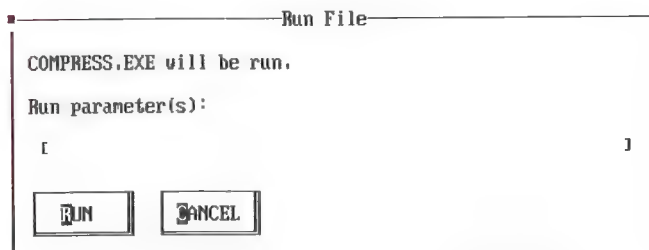
- Double-click on the file with the mouse.



If you select a file which has the extension .BAT, .EXE, or .COM and press CTRL-ENTER, PC Shell will not look for an application to run but will run the file itself. These extensions indicate an executable file rather than a data file. For

example, if you select EDLIN.COM, pressing CTRL-ENTER runs EDLIN.

The following dialog box appears:



3. Enter the parameters required by the program or any optional parameters.

Parameters are switches, usually optional, although some programs require them to run correctly. For example, PC Format requires that you enter a drive letter. Compress does not require parameters but you can specify optional parameters, such as /BW, which suppresses screen colors while Compress is running, or /NM, which suppresses the running of Mirror after Compress finishes. Please check your program manual for additional information on parameters.

If the file you selected is associated with an application on the Applications menu, the file's associated application is run and the selected file's name passed to the application. For example, *.WK1 files are associated with Lotus 1-2-3. Anytime you select a file with the .WK1 extension and press CTRL-ENTER, Lotus 1-2-3 is run using the selected .WK1 file. After the application finishes, you are returned to the main PC Shell screen.

Note: You can add your commonly used programs to the Applications menu so that you don't have to enter the parameters each time you run the program. You can then run the program using a single keystroke from PC Shell. See the section "Adding an Application" for more information.

4. Select Run to proceed or Cancel to return to PC Shell.

Using the Quick Run Command

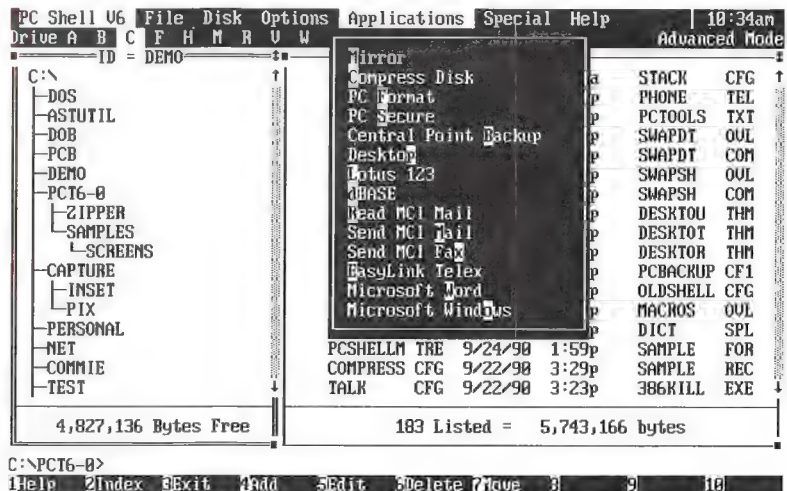
The Quick Run command is available on the Options menu only when you are running PC Shell in non-resident mode. If you are running PC Shell memory-resident, this command will not appear on the menu. Choosing Quick Run toggles this setting on or off. Applications in the Applications menu have independent Quick Run control on an application-by-application basis.

The Quick Run command works as follows: When ON, PC Shell does not free up memory prior to running an application from the DOS Command Line or by double-clicking or pressing CTRL-ENTER on a file name not associated with an application in the Applications menu, such as an .EXE, .COM, or .BAT file. Memory is freed when you leave PC Shell with the Exit command.

PC Shell takes about 208K of memory when active as a DOS shell. As long as the programs you are running do not need all available memory, the Quick Run command allows programs executed in this manner to be started much faster since no memory swapping takes place prior to running them. If your programs do not run or you do not have enough memory to load a large data file, choose the Quick Run command to turn it OFF. The memory is then freed prior to running your application. There will be a slight pause before it is run, but nearly all of your computer's memory will be available to the program.

The Application Menu

Choosing Applications from the Horizontal menu bar displays the Applications pull-down menu.



7. Running Programs from PC Shell

Running a Program from the Applications Menu

We have already installed various PC Tools applications on the menu for you. If you used Install to configure PC Shell, any popular applications which exist on your computer will also have been installed on the Applications menu; for example, Lotus 1-2-3, dBASE, WordPerfect, etc.

The Applications menu provides you with the powerful capability to run applications without leaving PC Shell. It performs the work equivalent to exiting PC Shell to DOS, changing directories, entering the command and parameters that run your application program, retrieving the file to be used in the application, and when you are finished, returning you to PC Shell. Tasks which require multiple commands and keystrokes can be done for you with one keystroke in PC Shell once they are set up on the Applications menu. You can add your own applications to the menu using the add option. You can also edit, delete and reorder the existing applications.

You can run applications from the Applications menu even if you hotkeyed into PC Shell while running an application. For example, if you have PC Shell installed resident and you are in dBASE looking at a database, then you want to look at some information in a Lotus 1-2-3 spreadsheet. You can hotkey into PC Shell, run Lotus 1-2-3, and find the spreadsheet you want. When you exit Lotus 1-2-3, you will be returned to PC Shell. Exiting PC Shell returns you to dBASE where you left off.



- Move the highlight bar to the application you want to run and press ENTER.

or

- Press the highlighted letter of the application.

or

- Click on the application with the mouse.



After the application finishes, you are returned to the main PC Shell screen.

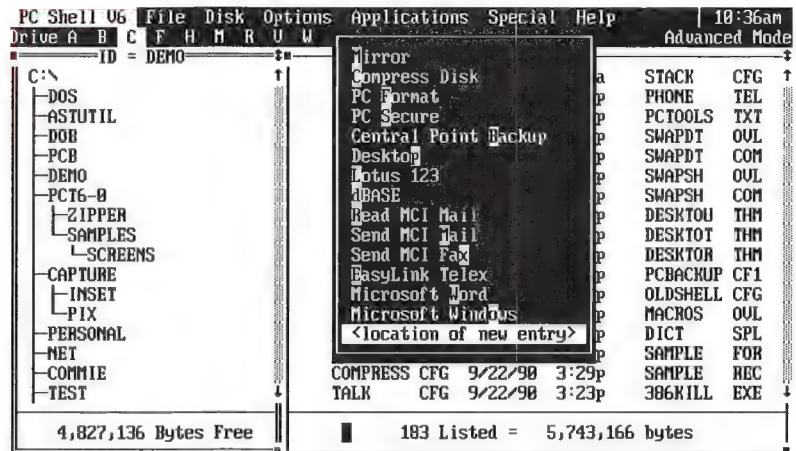
***Note:** If an application has been set up to run with specific types of files, you can select a file matching those specifications in the File List Window, then choose the application from the menu, and PC Shell will run the application using the selected file. For example, if Lotus 1-2-3 is on the Applications menu associated with files with the .WK1 extension, and a*

.WK1 file is selected in the File List Window, you can choose Lotus 1-2-3 from the Applications menu and it will run using the selected file.

Adding an Application to the Menu

You can add up to twenty applications to the Applications menu. All functions are found on the bottom line Message Bar.

1. Choose the Applications menu.
2. Press F4 or click on Add on the Message Bar. A highlighted place holder for the new application appears on the Applications menu.



C:\PCT6-8>

Position the bar indicating where to add. Press Enter to accept.

3. Use the Up and Down arrows or click the mouse to position the place holder where the new application is to be inserted in the list, then press ENTER or click on Enter on the Message Bar. The Application Editor dialog box appears.

Application Editor

Application.....	[.....]	
Initial Directory...]
Execute Path.....]
Run File Name.....		
Run File Extension...]	
Run Parameters.....]
User Prompt.....]
Keystrokes.....]
File Specs.....]
Quick Run this Application.....(Y/N)		
Run With Selected File.....(Y/N)		
Wait on Last Application Screen...(Y/N)		
Exit to DOS when Application ends.(Y/N)		

4. Position the highlight bar on the entry to be edited.
5. Enter information described below.
6. Press F4 or click on Accept to save the new application.

If you added a new application, it will appear on the Applications menu in the position designated in step 3. See the section "Running a Program from the Applications Menu" for information on how to run the newly-installed application.

7. Choose Save Configuration File from the Options menu to save the changes.

Note - Scrolling: Some of the entries allow you to enter more characters than are displayed on the screen. As you enter characters, the entry will scroll automatically. You can also use the Right and Left arrows to move the cursor one character right or left, and the HOME and END keys to position the cursor at the beginning or end of an entry.

Note - Editing: To insert characters, scroll to where the characters are to be inserted, and type the additional characters. Insert is the default mode; if you want to type over characters, press the INSERT key to go to overtype mode. To delete text, position the cursor on the character to be deleted and press DELETE.

Application: the name to appear on the menu for this application. If you press the ^ key (the SHIFT-6 key) before you type a letter, that letter is highlighted when the name appears on the menu and can then be used to start the application from the keyboard. For example, to highlight the letter "P" in WordPerfect, enter Word^Perfect. You could then start the WordPerfect application by pressing "P." Be careful to highlight letters not already used by other applications on the menu. The maximum size of this entry is 23 characters.

Initial Directory: becomes the current DOS drive and directory as soon as you run this application. This should be the drive and directory where a program's data files are located; for example, C:\123\DATA. If you keep the program and data files in different directories, specify the location of the data files in Initial Directory and the location of the program file in Execute Path. If you don't specify an initial directory, PC Shell looks for the application files in the current directory. The maximum size of Initial Directory is 64 characters.

Execute Path: the location of the executable program used by this application; for example, C:\123. You don't need to specify an execute path if the program is in the current DOS directory or in a directory in the PATH (see the PATH statement in your AUTOEXEC.BAT file). The maximum size of Execute Path is 64 characters.

Run File Name: the name of the executable program used by this application; for example, COMPRESS, PCBACKUP, WORD, LOTUS.

Run File Extension: the extension of the executable program used by this application; for example, BAT, COM or EXE.

Run Parameter(s): any parameters to be passed to the program. For example, if you want to run Compress on drive C without having to make menu choices, specify the parameters C: /CF. This will do a full compress on drive C. For more information on parameters, see the manual for your application program. The maximum size of Run Parameter(s) is 128 characters.

User Prompt: if specified, the application halts just prior to executing the program and the text of User Prompt is displayed on the screen followed by the message: "Press any key or mouse button to continue." This entry is useful for application programs that require a "key disk" (a special diskette that's a copy protection safeguard) to run. The prompt can be a reminder to insert the key disk; for example, "Insert Program Disk." Once you insert the disk, the application program executes. The maximum size of User Prompt is 128 characters.

Keystrokes: a key or combination of keys passed to the program as keyboard input. This entry is especially useful for an application which requires a sequence of keystrokes to load a file into the application. A table of available keystrokes can be found at the end of this section. The maximum size of Keystrokes is 128 characters.

There are three methods for entering keystrokes:

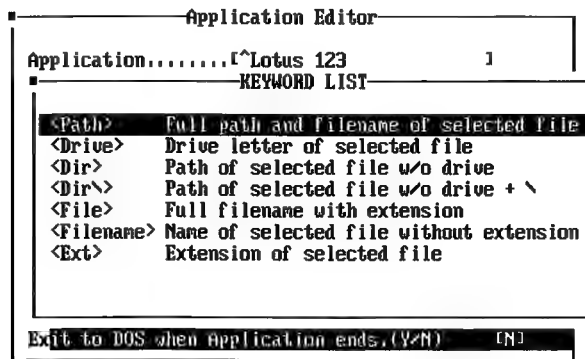
- I. Enter the actual key.
 - To enter the "L" key, type L
 - To enter the "/" key, type /
- L and / appear on the Keystroke line.

II. Enter keys represented by multiple letters between left and right angular brackets (<>). For example, if <Esc> were not between brackets, "E", "S" and "C" would be passed as individual keystrokes. You can also press F7, or click on F7 on the Message Bar, and press a key. F7 directs the Application Editor to insert the next key pressed between brackets.

- To enter the key combination "Ctrl-L", press F7, then CTRL-L
- To enter the "Home" key, press F7, then HOME

<CtrlL> and <Home> appear on the Keystroke line.

III. Press F8 or click on F8 on the Message Bar to choose from a list of keywords. The keyword list dialog box appears. Use the Up and Down arrows to highlight a keyword and press ENTER, or click on a keyword to select it. The dialog box then closes and the selected keyword appears on the Keystrokes line.



Keywords pass a series of keystrokes to the application, depending on the keyword specified.

For example, <Path> passes the keystrokes that comprise the full path and filename of the selected file. If the Lotus 1-2-3 file SAMPLE.WK1 is selected in the File List Window and is in the C:\123 directory, <Path> passes the keystrokes C:\123\SAMPLE.WK1 to the Lotus 1-2-3 application. It's as if you had entered C:\123\SAMPLE.WK1 on the Keystrokes line. <Path> is a better way to pass a filename to the application since it functions as a variable: you can substitute

a different filename each time without keying it in. All you do is select a new file from the File List.

<Typein> causes PC Shell to stop passing keystrokes to the application and wait for keystrokes from the keyboard, terminated by Enter. This allows you to vary the keystrokes passed to the application without having to edit the keystrokes entry. For example, rather than using <Path> to pass the filename to an application, you can use <Typein> to pass it from the keyboard.

<DelayN> prevents any keystrokes which follow from being passed to the application until N seconds have elapsed. For example, if the keystrokes entry is <Delay3><Esc>C, the keystrokes "Esc" and "C" do not get passed to the application until three seconds have elapsed. Replace N with a numerical value in the format NN.N. To indicate a delay of 1/10 of a second, replace N with .1 To indicate a delay of 10 seconds, replace N with 10.

File Specs: the files associated with this application and which automatically start the application under certain conditions (see the section "Running a Program from the File List Window").

- The maximum size of File Specs is 128 characters.
- Wildcards are allowed for filename and file extension.
- Multiple file specifications are allowed: separate multiple file specifications with spaces and use "-" to exclude file specifications.

For example, *.WK1 *.WKS associates all files with extensions of .WK1 and .WKS with this application. *.WK? -*.WKQ associates all files whose extensions begin with .WK, except those with extension .WKQ.

Quick Run this Application: if you answer Yes, PC Shell runs the application without freeing up any of the memory used by PC Shell. If you answer No, PC Shell frees up as much conventional memory as possible by writing a copy of conventional memory out to disk or to expanded memory. In resident mode, PC Shell frees up all of its memory except the small resident portion which is always there.

The amount of conventional memory needed by an application will determine your answer. For example, if the application you want to run requires more memory than is available (typically a database,

spreadsheet or word processing application), answer No. The drawback is that it takes longer for an application to start because of the time required to free up memory. If your application doesn't require additional memory, answer Yes and it will start faster.

Run with Selected File: if you answer Yes, the currently selected filename is passed to the program as command line input. If no files are selected, the filename passed is the highlighted file.

You can answer Yes if the application, when run from the DOS prompt, allows the filename to be input from the command line. For example, when you run Word from the DOS prompt, you can specify the filename after the program name; for example, `WORD SAMPLE.DOC`. (Notice that you can also pass the filename to Word as keyboard input.) Answer No if the application does not allow the filename to be specified on the command line. For example, Lotus 1-2-3 can only pass the filename from the keyboard after the program starts. See the section "Keystrokes" for information on how to pass the filename as keyboard input.

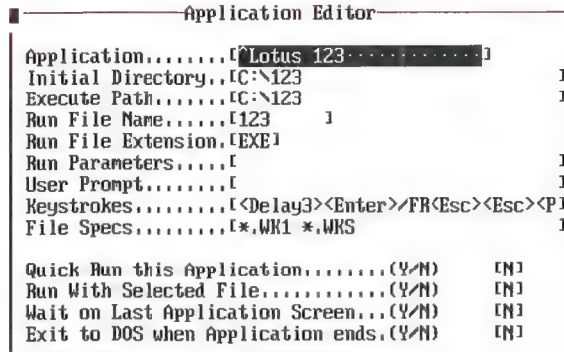
Wait on Last Application Screen: answer Yes to pause the final screen of an application and display the message: "Press any key or mouse button to continue." This is useful when running a program, such as CHKDSK, that ends as soon as it displays its last screen of information. Otherwise, when CHKDSK ends, PC Shell resumes and replaces the last CHKDSK screen immediately with the PC Shell screen.

Exit to DOS when Application ends: answer Yes to exit to DOS after the application has finished.

Editing an Application on the Menu

Once added to the Applications list, you can revise your entry.

1. Choose the Applications menu. The Applications menu appears.
2. Press F5 or click on Edit on the Message Bar. You are prompted on the Message Bar to select the entry to edit.
3. Select the application you want to edit. The Application Editor dialog box appears with the current information for the application displayed.

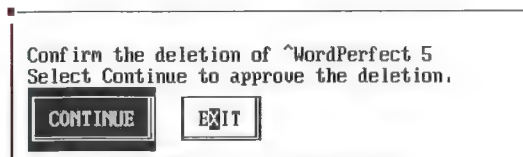


3. Modify the entries according to the instructions in the section "Adding an Application."
4. Press F4 to save the modifications.

Deleting an Application from the Menu

You can remove applications if you decide you don't want them on the list.

1. Choose the Applications menu. The Applications menu appears.
2. Press F6 or click on Delete on the Message Bar. You are prompted on the Message Bar to select the entry to delete.
3. Select the application you want to delete. A dialog box appears which asks you to confirm the deletion of the application.



4. Select Continue to delete the application and Exit if you don't want to delete the application.

Reordering the Applications on the Menu

You can change the order of the applications on the menu.

1. Choose the Applications menu. The Applications menu appears.

2. Press F7 or click on Move on the Message Bar. You are prompted on the Message Bar to select the entry to move.
3. Select the application that you want to move and press ENTER.



4. Use the Up and Down arrow keys or click on the application with the mouse to move the highlighted application to its new location.



5. Press ENTER or click the mouse to accept the reordered list.
6. Press ESC or click outside the Application menu with the mouse to exit the move procedure.

Example of an Application

Lotus 1-2-3

The following application is equivalent to executing 123.EXE from the DOS command line and loading the spreadsheet selected in the PC Shell File List Window into 1-2-3. It's easy from PC Shell (select a .WKS or .WK1 file and press CTRL-ENTER), once you've added this application to the menu, but a lot of work if every time you want to run 1-2-3 and load a file into it, you have to exit PC Shell to DOS, run 123.EXE, then work your way through the 1-2-3 menu system to load the file. And when 1-2-3 finished, you wouldn't automatically be back in PC Shell.

Application Editor		
Application.....	[Lotus 123]
Initial Directory..	[C:\123]
Execute Path.....	[C:\123]
Run File Name.....	[123]
Run File Extension,	[EXE]	
Run Parameters.....	[]
User Prompt.....	[]
Keystrokes.....	[<Delay3><Enter>/FR<Esc><Esc><P>]
File Specs.....	[*,WK1 *,WKS]
Quick Run this Application.....	(Y/N)	[N]
Run With Selected File.....	(Y/N)	[N]
Wait on Last Application Screen..	(Y/N)	[N]
Exit to DOS when Application ends.	(Y/N)	[N]

Application: ^Lotus 123 is the name of this application. The ^^ before "L" directs PC Shell to highlight the "L" when the application name appears on the menu; "L" can then be used to start Lotus 1-2-3.

Initial directory: in this example, C:\123

Execute Path: in this example, Lotus 1-2-3 is located in C:\123

Run File Name: 123

Run File Extension: EXE

Run Parameters: left blank because Lotus 1-2-3 doesn't allow them.

User Prompt: not used.

Keystrokes: <Delay3><Enter>/FR<Esc><Esc><Path><Enter>

<Delay3> causes a delay of 3 seconds after 123.EXE is executed by PC Shell.

<Enter> clears the Lotus 1-2-3 copyright message and displays a blank 1-2-3 spreadsheet.

/ displays the 1-2-3 Main menu.

F selects the File command.

R selects the Retrieve command. In this example, you are prompted to "Enter the name of the file to retrieve: C:\123*.WK?"

<Esc> erases *.WK?

<Esc> erases C:\123\, leaving "Enter the name of the file to retrieve:"

7. Running Programs from PC Shell

<Path> passes the full path and filename of the file selected in the File List Window to 1-2-3. If you used the keyword **<Typein>** instead of **<Path>**, the application would pause at this point and allow you type in the name of the file you want passed to 1-2-3.

<Enter> accepts the file to be retrieved.

Files Specs: *.WK1 *.WKS. This application runs automatically whenever you select a file with the .WK1 or .WKS extension in the File List Window and press CTRL-ENTER, or when you double click on a .WKS or .WK1 file.

Quick Run this Application: No, because Lotus 1-2-3 will not have enough memory to run unless PC Shell frees up as much memory as possible.

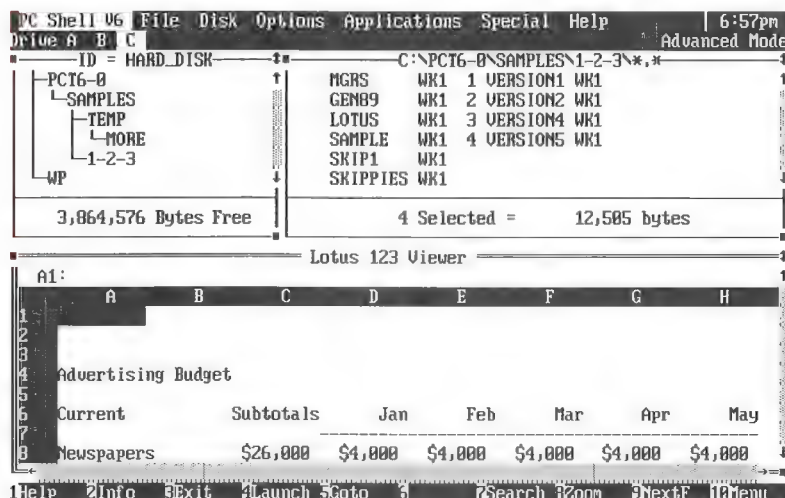
Run with Selected file:: No, so that Lotus 1-2-3 is not passed the name of the selected file as command line input. 1-2-3 must be passed the filename as keyboard input.

Wait on Last Application Screen: No, because it's not necessary.

Exit to DOS when Application Ends: No, to return to PC Shell after Lotus 1-2-3 ends.

Running a Program from a View Window

You can launch an application from any of the file viewers as long as you have the associated application configured in the Applications menu. For example, suppose you are viewing Lotus 1-2-3 files and find one you want to modify:



- Press F4 or choose the Launch command from the Message Bar to launch the associated application.

Launch exits PC Shell, runs Lotus 1-2-3 for you. When you finish making changes and exit Lotus 1-2-3, you are returned to PC Shell.

The applications on your hard disk will be configured on the Application menu for you during installation.

Running a Program from the DOS Command Line

The DOS Command Line is an optional line where DOS commands can be entered and executed. This capability makes all DOS functionality available from PC Shell, whether PC Shell is resident or not. For example, if you have PC Shell installed resident with the DOS Command Line turned on and you are in dBASE looking at a database, then you want to look at some information in a Lotus 1-2-3 spreadsheet. You can hotkey into PC Shell, run Lotus 1-2-3 from the DOS command line, and find the spreadsheet you want. When you exit Lotus 1-2-3, you will be returned to PC Shell. Exiting PC Shell returns you to dBASE where you left off.

8. Locating, Viewing, Launching Files

This section provides an overview of the file locate, view, and application launch capabilities in PC Shell. Each function is explained in other sections in the manual; the purpose of this overview is to demonstrate how these commands can be used together to manage your files in powerful yet easy ways.

With the Locate File command, you can find a specific file or files with similar names and extensions, such as your word processor or database files, no matter where they are on your drive, and display them in a window. Locate searches the entire drive or selected directories according to your file specifications. If you use Locate File to find certain files on a regular basis, you can save the file specifications as a search group and in future locates, select the name of the search group rather than reentering the file specifications. Locate also has a search option which allows you to locate files containing a particular word or phrase.

The files that match your locate and search criteria are displayed in the Locate Window. You can use PC Shell file commands, such as Copy, Move, Delete, etc., on any or all of the files displayed. The ability to view files is especially useful if you want to examine the contents of the located files.

You can view files from dBASE, Lotus 1-2-3, Word Perfect, and many other common database, spreadsheet and word processing applications in their standard formats without having to run the applications. You can also view files with the extension .PCX in graphics format, such as pictures created in PC Paintbrush. When you use a View Window with Locate Files, the Locate and View Windows appear on the screen at the same time, with the search text in the View Window highlighted.

You can view the contents of file after file simply by selecting each file listed in the Locate Window. You can scroll through the entire viewed document, database or spreadsheet, even go directly to specific cells in spreadsheets or records in databases. You can also do text searches on the viewed file using the View Window's search capability. If the View Window was the active window prior to using Locate, it will be active after Locate.

If you decide to run a file's application, you can do it right from the viewer using the Launch command. WordPerfect, dBASE, Lotus 1-2-3 or the appropriate application for your file will execute and load the file you are viewing. When the application finishes, you are returned to PC Shell.

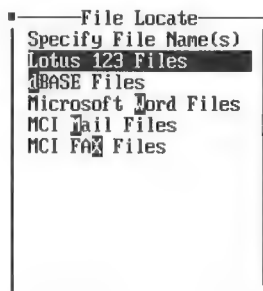
Example 1

Suppose you used Lotus 1-2-3 to estimate your advertising expenditures for the coming year, and you want to revise those estimates. You have more than one spreadsheet file containing budget information, and you don't remember which file contains the advertising budget. You do know, however, that the word "advertising" appears in the spreadsheet you want to recalculate. Here's how you can use PC Shell to find the spreadsheet you want and make the changes quickly and easily.

☐ To find all the Lotus 1-2-3 files containing the word "advertising":

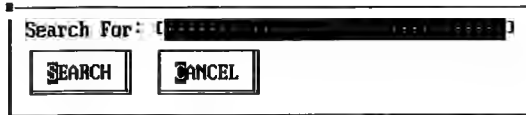
1. Choose Locate File from the File menu.

The File Locate dialog box appears:



2. Choose the Lotus 123 search group entry.

This entry was created for you when you ran Install. It locates all of your Lotus 1-2-3 files. After you select the search group, the Search For dialog box appears:



3. Type the word "advertising" and select Search to start the locate.

If you decide you want a different search group, select Cancel and start over.



In this example, eleven files matching your locate and search criteria are displayed in the Locate Window:

8. Locating, Viewing, Launching Files

PC Shell V6 File Disk Options Applications Special Help 7:25pm									
Drive A B C									
Located Files									
SKIPPIES	WK1	6/08/89	4:54p	8236	...	C:\COPYII			
LOTUS	WK1	3/09/90	3:55p	2739	...	A C:\PCT6-0\SAMPLES			
UP-PLAN	WK1	3/09/90	3:50p	7159	...	A C:\PCT6-0\SAMPLES			
SKIP2	WK1	6/05/89	7:10p	2722	...	A C:\PCT6-0\SAMPLES\SCREENS			
SKIPPIES	WK1	6/06/89	10:42a	2531	...	A C:\PCT6-0\SAMPLES\SCREENS			
VERSION1	WK1	9/05/89	12:21p	3819	...	A C:\PCT6-0\SAMPLES\SCREENS			
VERSION2	WK1	9/18/89	11:57a	3241	...	A C:\PCT6-0\SAMPLES\SCREENS			
VERSION3	WK1	10/03/89	1:06p	3241	...	A C:\PCT6-0\SAMPLES\SCREENS			
VERSION4	WK1	10/25/89	11:29a	3804	...	A C:\PCT6-0\SAMPLES\SCREENS			
LOTUS	WK1	3/09/90	3:55p	2739	...	A C:\PCT6-0\SAMPLES\SCREENS			
LOTUS	WK1	2/21/90	11:39a	5596	...	A C:\PCT6-0\SAMPLES\MORE			
11 Listed = 44,227 bytes									
1 Help 2 View 3 Exit 4 Unsel 5 Copy 6 Disply 7 Locate 8 Zoom 9 Select 10 Menu									

- ❑ To determine which of the files contains the correct version of the advertising budget:

1. Select all the files in the Locate Window.
2. Choose Quick File View.

PC Shell V6 File Disk Options Applications Special Help | 11:55am

VERSION4.WK1 Lotus 123 Viewer

A4: 'Advertising Budget

	A	B	C	D	E	F	G	H
1								
2								
3								
4	Advertising Budget							
5								
6	1987	Jan	Feb	Mar	Apr	May	Jun	
7								
8	Newspapers	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	
9								
10	Magazines	\$200	\$200	\$200	\$200	\$200	\$200	
11								
12	Trade fairs	\$9,000	\$0	\$0	\$0,000	\$0	\$0	
13								
14	Radio Promotions	\$500	\$500	\$500	\$500	\$500	\$500	
15								
16	Totals	\$11,700	\$2,700	\$2,700	\$11,500	\$2,700	\$2,700	
17								
18								
19								
20								

1 Help 2 Info 3 Exit 4 Launch 5 Goto 6 7 Search 8 Unzoom 9 NextF 10 Menu

You can scroll through the active View Window easily using the vertical and horizontal scroll bars, the right mouse button function, or the keyboard.

This is not the file you want since it is a copy of a previous year's budget.

❑ To examine the contents of the other selected files:

- Press F9 or choose the Next command to display each selected file in succession in the Zoom window.

A quick look at the other files eliminates all but VERSION1.WK1.

PC Shell V6 File Disk Options Applications Special Help | 11:56am
VERSION1.WK1 Lotus 123 Viewer
A4: 'Advertising Budget (copy of 1988)

	A	B	C	D	E	F	G	H
1								
2								
3								
4	Advertising Budget (copy of 1988)							
5								
6			Jan	Feb	Mar	Apr	May	Jun
7								
8	Newspapers		\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
9								
10	Magazines		\$200	\$200	\$200	\$200	\$200	\$200
11								
12	Trade fairs		\$9,000	\$0	\$0	\$8,000	\$0	\$0
13								
14	Radio Promotions		\$500	\$500	\$500	\$500	\$500	\$500
15								
16	Totals		\$11,700	\$2,700	\$2,700	\$11,500	\$2,700	\$2,700
17								
18								
19								
20								
21	Help	2Info	3Exit	4Launch	5Goto	6	7Search	8Unzoom
							9NextF	10Menu

❑ To run Lotus 1-2-3 and modify the spreadsheet:

- Press F4 or click on the Launch command on the message bar.

This launches Lotus 1-2-3 and allows you to revise the budget figures. Launch exits PC Shell, runs Lotus 1-2-3, and automatically types the characters to load the file VERSION1.WK1 into Lotus 1-2-3 for you. When you finish

making changes and exit Lotus 1-2-3, you are returned to PC Shell.

Example 2

Example 2 is a variation of Example 1. Again, suppose you used Lotus 1-2-3 to estimate your advertising expenditures for the coming year, and you want to revise those estimates. You have more than one spreadsheet file containing budget information, and you don't remember which file contains the advertising budget. You do know, however, that the word "advertising" appears in the spreadsheet you want to change. Here's how you can use PC Shell to find the spreadsheet you want and make the changes quickly and easily.

- To find all the Lotus 1-2-3 files in the \123 directory containing the word "advertising":

1. Choose the Locate File command.

The File Locate dialog box appears:



2. Choose the Specify File Name(s) entry.

The Filespecs dialog box appears:

Enter the specific file or groups of files you wish to locate

Wildcard characters are allowed in the directory name(s), the filename(s), and/or the extension(s). Multiple paths and/or filetypes can be located by placing a space between each spec.

Paths can be EXCLUDED from the list by using the - character.

Example: *.exe *.com *.bat -\dos*,* -\pc*,*

Filespecs: [.....]

3. Enter the following for the Filespecs:

\123*.WK1

\123 is the directory, "*" is a place holder for the file name, and WK1 is an extension used by 1-2-3 for spreadsheet files.

Enter the specific file or groups of files you wish to locate

Wildcard characters are allowed in the directory name(s), the filename(s), and/or the extension(s). Multiple paths and/or filetypes can be located by placing a space between each spec.

Paths can be EXCLUDED from the list by using the - character.

Example: *.exe *.com *.bat -\dos*,* -\pc*,*

Filespecs: [1-2-3*.WK1]

If you don't specify a directory, Locate looks for *.WK1 files in all directories on the current drive. After you complete the Filespecs entry and select Search, the Search For dialog box appears:

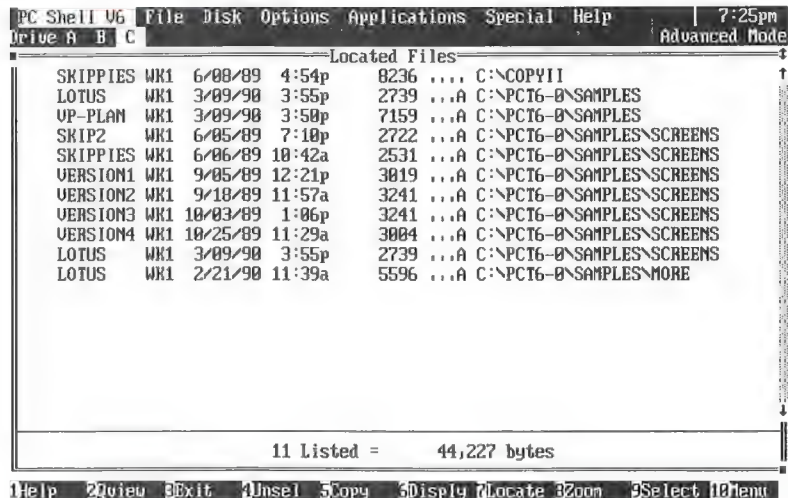
Search For: [.....]

8. Locating, Viewing, Launching Files

4. Type the word "advertising" and select Search to start the locate.



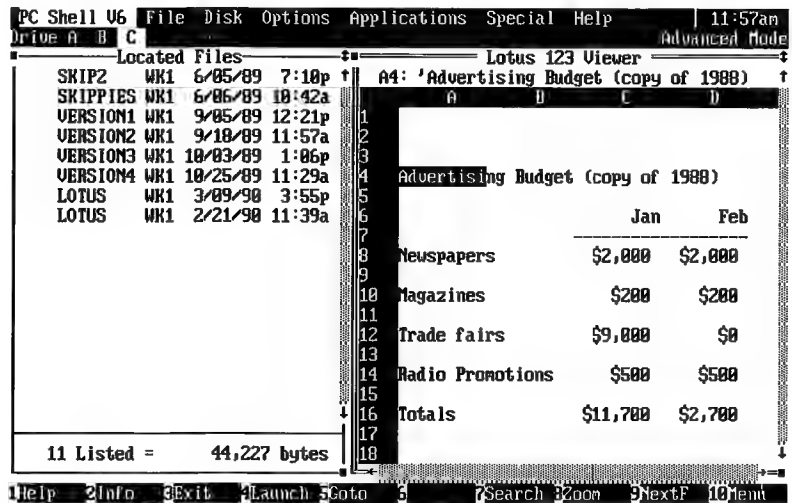
In this example, eleven files matching your locate and search criteria are displayed in the Locate Window:



- To determine which of the files contains the correct version of the advertising budget:

1. Select the first file in the Locate Window.
2. Turn on the View Window to view its contents.

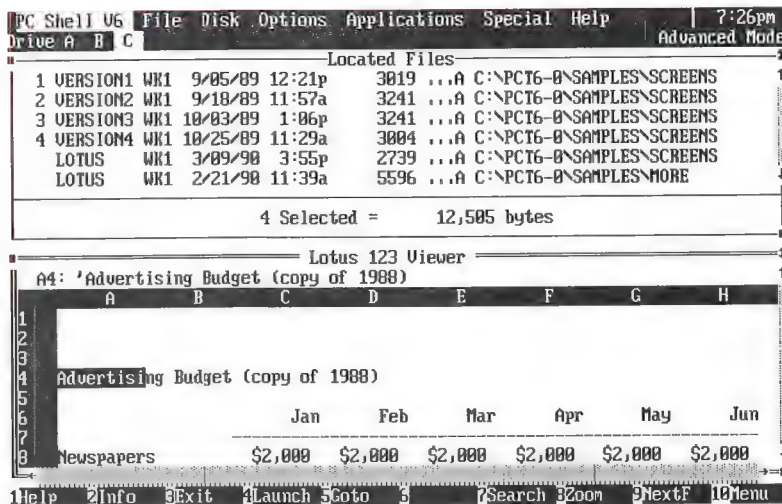
The file is displayed in the View Window in Lotus 1-2-3 format with the first occurrence of the word "advertising" highlighted.



You can use the keyboard or mouse to resize and move the Locate and View Windows so that more of the viewed file is displayed on the screen.

You can also change the viewer configuration to horizontal (choose the Viewer Cfg. option from the Setup Configuration pop-up menu):

8. Locating, Viewing, Launching Files



This is not the file you want since it is a copy of a previous year's budget.

3. View each file in succession in the View Window.

To do this,

- Scroll in the File List, or
- Press F9, or
- Click on Next on the bottom line.

A quick look at the other files eliminates all but VERSION4.WK1.

Examine VERSION4.WK1 more closely to check the Radio Promotions Subtotals since those were changed recently. With VERSION4.WK1 displayed in the View Window:

4. Press TAB or click in the View Window to activate it.

☐ To look at the radio promotions subtotals:

1. Choose the Search command from the message bar.

The Search For dialog box is displayed.

Search For:

2. Enter "Radio Promotions".

Search For: Radio Promotions.....

The View Window scrolls to the first occurrence of the phrase "Radio Promotions."

The screenshot shows the PC Shell V6 interface. On the left, a 'Located Files' window lists several files, including 'VERSION4.WK1'. On the right, the 'Lotus 123 Viewer' window displays a spreadsheet titled 'A14: 'Radio Promotions''. The spreadsheet has columns A, B, C, and D. The data is as follows:

	A	B	C	D
1	Advertising Budget			
2				
3				
4				
5	Current	Subtotals		Jan
6				
7	Newspapers	\$26,000		\$4,000
8				
9	Magazines	\$45,200		\$7,500
10				
11	Trade fairs	\$45,000		\$27,000
12				
13	Radio Promotions	\$150,950		\$24,000
14				
15	Totals	\$275,150		\$62,500
16				
17				
18				

At the bottom of the file list, it says '11 Listed = 44,227 bytes'. The bottom status bar shows menu options: 1 Help, 2 Info, 3 Exit, 4 Launch, 5 Goto, 6, 7 Search, 8 Zoom, 9 NextF, 10 Menu.

❑ To run Lotus 1-2-3 and modify the spreadsheet:

- Choose the Launch command from the File pull-down menu or from the message bar.

This exits PC Shell, runs Lotus 1-2-3, and automatically types the characters to load the file VERSION4.WK1 into Lotus 1-2-3 for you. When you finish making changes and exit Lotus 1-2-3, you are returned to PC Shell.

9. Managing Files

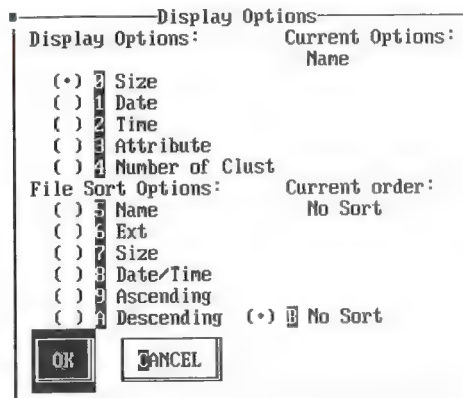
File Display Options

The File Display Options command found on the Modify Display pop-up menu on the Options menu allows you to specify how the files are displayed and sorted in the File List window. PC Shell automatically displays the files as they are stored on the disk; however, you can use this command to change the display.

❑ To display files differently:

1. Choose the File Display Options from the Modify Display pop-up menu on the Options menu, press F6, or click on the Display command on the bottom line (if you haven't changed it).

PC Shell displays the Display Options dialog box.



Note: The Current display Options are listed on the top right of the dialog box.

2. Select any of the following options from the Display Options dialog box. You may select more than one option.

Size: displays the file size.

Date: displays the file date.

Time: displays the file time.

Attribute: displays the file attributes.

Number of Cluster: displays the number of clusters for that file.

***Note:** Changing the first five options (0-4) affects the size of the File List Window if a View Window is on and in vertical orientation. (It makes the File List larger than the Tree Window.)*

The current sort order is listed in the dialog box. You can choose a different File Sort Order from the following list. With each sort order, you may also choose if you want the sort to be ascending or descending. The default display is for no sorting to occur.

Name: lists the files according to their names.

Ext: lists the files according to their extensions.

Size: lists the files according to their size.

Date/Time: lists the files according to their date and time.

Ascending: lists the files according to the options specified, in ascending order.

Descending: lists the files according to the options specified, in descending order.

No Sort: no sorting occurs. The files are listed in the order they occur in the directory.

3. Select OK to view the files with the selected display and list order or Cancel to disregard the selected options and return to the main PC Shell screen.

***Note:** To save the File List window configuration for subsequent PC Shell sessions, use the Save Configuration command in the Options menu.*

Selecting Files

There are a number of ways to select files for performing copying, moving, comparing, etc. functions in PC Shell.

If there are no files selected, file operations are performed on the file the highlight bar is resting on. If there are several files selected, holding down the **SHIFT** key along with a function key or short cut key will perform the file operation on the file the highlight bar is resting on instead of all selected files.

Note: For example, *.* will match all files and show the entire directory. *.COM will match and list only the files with an extension of COM.

3. Choose Select to proceed. PC Shell returns to the main PC Shell screen with the files you selected listed.

Note: Once the File List Filter is used, you must use it to again to show all files.

Select Reset to reset the file name and extension to *.* , or select Cancel to end the procedure.

Unselecting Files



There are a number of ways you can unselect files.

☐ To unselect files using the keyboard:

1. Press the Up, Down, Left, or Right arrow keys, or the PGUP, PGDN, HOME, or END keys to move the highlight bar to the selected file.
2. Press the ENTER key to unselect the file, or

Press and hold down the ENTER key to unselect a group of files, or

Press the F4 key to unselect all selected files if you haven't redefined it.



☐ To unselect files using the mouse:

Left Mouse

- Click on a selected file with the left mouse button to unselect the file.

Click on the "Unsel" command on the bottom line if you haven't redefined it.

Right Mouse

- Press the right mouse button and position the highlight bar over the first file you want to unselect, then press and hold down the left mouse button. Drag the highlight bar over any additional files you want to unselect. As the files are unselected the highlight and numbers are removed. Release both mouse buttons.

❑ To unselect files using the pull-down menu:

This command will unselect all selected files in the active File List window.

1. Choose the Modify Display command from the Options menu.
The Modify Display pop-up menu appears.
2. Choose the Unselect Files command from the Modify Display pop-up menu.
All previously selected files are unselected.

Copying Files



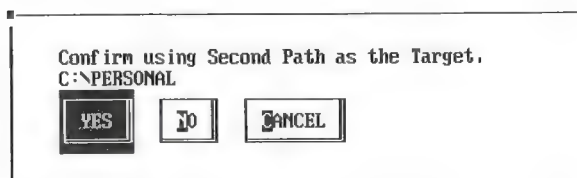
The Copy File command allows you to copy a single file or a group of files. Files may be copied from one drive to another, to the same drive with a new file name, or to the same drive, but into a different directory. You can copy files with the Tree Window and File List window on or off.

❑ To copy a file:

1. Select the directory containing the file(s) you want to copy *from* in the Tree Window (use the TAB key). If you have two file lists active (you have pressed the INS key or selected Two List Display from the Modify Display pop-up menu on the Options menu), then select the drive and directory you want to copy the files *to* in the second file list.
2. Press the TAB key to activate the window containing the file(s) you want to copy. Select the file(s) you want to copy using the cursor keys and ENTER.

Note: If you are using the Two List Display to copy, proceed to step 3. If you are using the Single List Display, proceed to step 4.

3. Choose Copy File from the File menu or press F5 if you haven't redefined it. PC Shell displays a message asking you if the second window display is the one you want to copy the selected file(s) to. If so, select Yes.

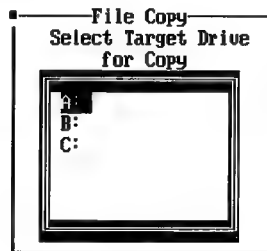


PC Shell copies the file(s) to the new location, displaying the File Copy dialog box with the file(s) being copied and the path of the new location. Upon completion you are returned to the main PC Shell screen.

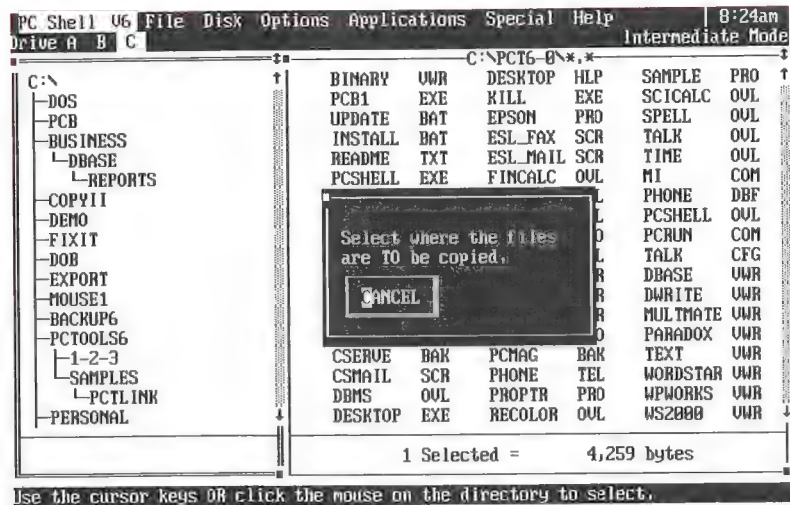
- If the second window display is not the one you want to copy the selected files to, select No. Proceed to step 4 to continue with the drive and/or subdirectory selection process.

Selecting Cancel ends the copy process and returns you to the main PC Shell screen.

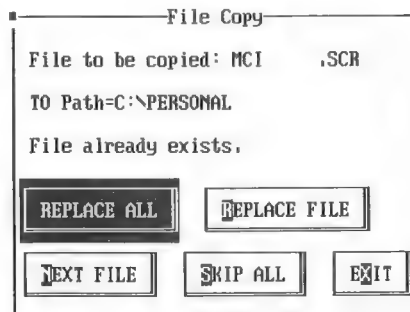
4. The File Copy box is displayed for you to select the target drive to copy the file(s) to.



5. To proceed, select the target drive by pressing a drive letter, or press `ESC` to end the copy process. If the target drive contains subdirectories, they will be displayed in the Tree window and a message appears (below) requesting you to select the subdirectory where the file(s) are to be copied.



- From the Tree window select the subdirectory to copy the file(s) to.
- If the selected file name(s) exist in the target subdirectory or drive, the File Copy dialog box (below) is displayed for you to select one of the five options.



Replace All: replaces all file(s) in the target subdirectory with the same name(s) as the selected file(s).

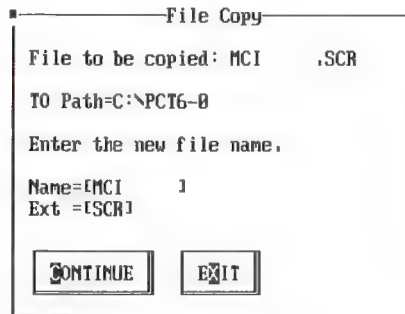
Replace File: replaces the current file in the target subdirectory with the same name as the selected file.

Next File: skips to the next file. No action is taken on the current file.

Skip All: skips all selected files that exist in the target directory but copies the others.

Exit: returns to the main PC Shell screen.

8. If you are copying file(s) into the same subdirectory, on the same drive, the File Copy dialog box (below) will appear for you to enter a new file name. You may then select Continue or Exit.



PC Shell copies the file(s) to the new location, displaying the File Copy dialog box with the file being copied and the path of the new location. Upon completion you are returned to the main PC Shell screen.



❑ To copy file(s) using the mouse:

One of PC Shell's convenient features is the ability to copy files by dragging the selected file(s) from one subdirectory or disk to another, with simple mouse movements.

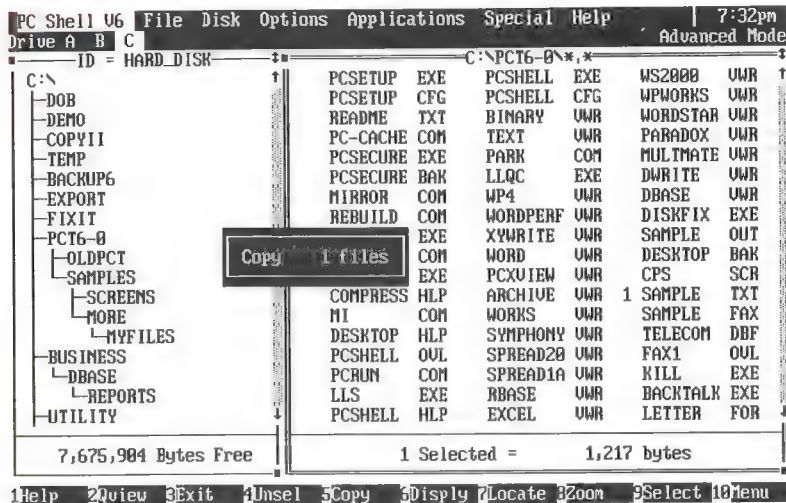
❑ To copy files using the Single List Display:

Use the Single List Display to copy file(s) on the same drive, from one subdirectory to another.

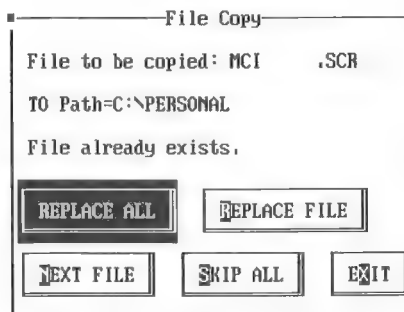
1. Select the directory containing the file(s) you want to copy from the Tree Window (click in the Tree Window with the mouse.)
2. From the File List window select the file(s) to be copied with the mouse.
3. Position the mouse pointer on one of the selected files. Click on the file with the left mouse button and hold the mouse

9. Managing Files

button down, dragging the file to the target subdirectory in the Tree window. As you begin dragging the mouse, a small copy box appears and moves with the mouse cursor. The box displays the number of files that will be copied.



- When you release the mouse button over the selected subdirectory name in the Tree window, the copy operation automatically starts. If the selected file name(s) exist in the target subdirectory, the File Copy dialog box (below) is displayed for you to select one of five options.



Replace All: replaces all file(s) in the target subdirectory with the same names(s) as the selected file(s).

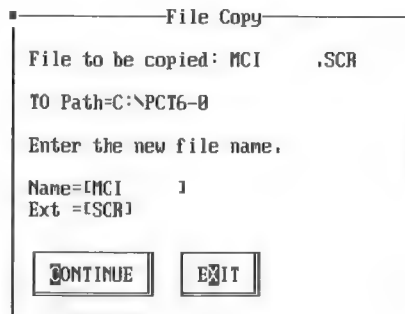
Replace File: replaces the current file in the target subdirectory with the same name as the selected file.

Next File: skips to the next file. No action is taken on the current file.

Skip All: skips all selected files that exist in the target directory but copies the others.

Exit: returns to the main PC Shell screen.

5. If copying file(s) into the same subdirectory, on the same drive, the File Copy dialog box (below) requests you to enter a new file name, as it cannot copy files to themselves. You may then select Continue or Exit.



PC Shell copies the file(s) to the new location, displaying the File Copy dialog box with the file being copied and the path of the new location. Upon completion you are returned to the main PC Shell screen.

❑ To copy files using the Two List Display:

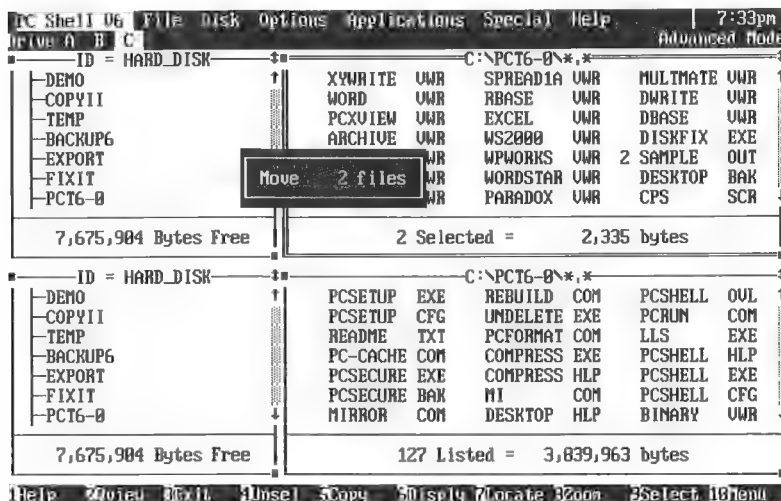
Use the Two List Display to copy file(s) to a different drive or from one File List window to another.

Note: All copy procedures which can be performed with the Single List Display can also be performed with the Two List Display.

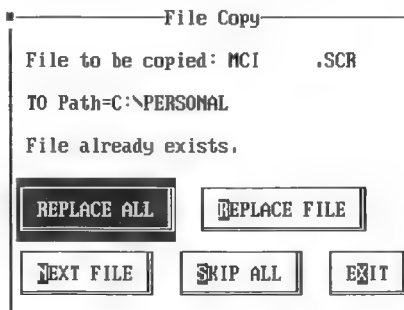
1. Select the Two List Display from the Options pull-down menu. PC Shell opens a second set of windows.
2. Click in the Tree Window with the mouse to select the directory containing the files you want to copy.
3. From the File List window select the file(s) to be copied by clicking on them with the mouse.

9. Managing Files

- Position the mouse pointer on one of the selected files. Click on the file with the left mouse button and hold the mouse button down, dragging the file to the target subdirectory in one of the Tree List windows or the other File List window. As you begin dragging the mouse, a small copy box appears and moves with the mouse cursor (see the following illustration). The box displays the number of files that will be copied.



- When you release the mouse button over the selected subdirectory name in the Tree or File List window, the copy operation automatically starts. If the selected file name(s) exist in the target subdirectory, the File Copy dialog box (below) is displayed for you to select one of the five options.



Replace All: replaces all file(s) in the target subdirectory with the same names(s) as the selected file(s).

Replace File: replaces current file in the target subdirectory with the same name as the selected file.

Next File: skips to the next file. No action is taken on the current file.

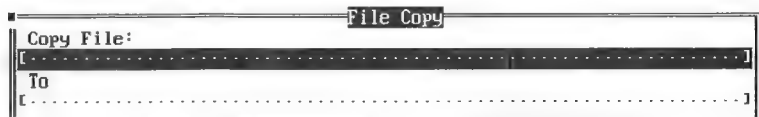
Skip All: skips all selected files that exist in the target directory but copies the others.

Exit: returns to the main PC Shell screen.

PC Shell copies the file(s) to the new location, displaying the File Copy dialog box with the file being copied and the path of the new location. Upon completion you are returned to the main PC Shell screen.

❑ To copy files with windows hidden:

Choosing the Copy File command with windows hidden will bring up a dialog box requesting the necessary information:



Type the path and name of the file you want to copy and the path and name for the file's destination.

Moving Files

The Move File Command allows you to move a single file or a group of files. Move is just like Copy except that it automatically deletes the source file(s) from the original disk or directory after the copy is successful. You can move files from one disk to another or onto the same disk into a different subdirectory.

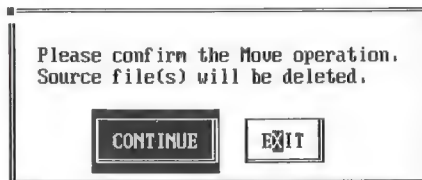


❑ To move files:

1. Select the directory containing the file(s) to be moved from the Tree Window (press the TAB key to activate the Tree Window). If you have two file lists displayed (you have pressed the INS key or selected Two List Display from the Modify Display pop-up menu on the Options menu), then

select the drive and directory you want to move the file(s) to from the second file list.

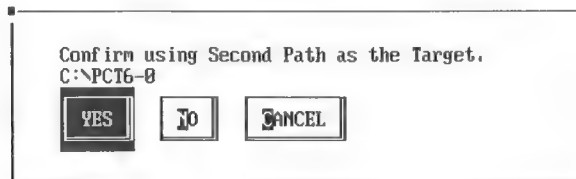
2. Press the **TAB** key to activate the File List window that contains the file(s) you want to move. Select the file(s) you want to move by using the cursor keys and **ENTER**.
3. Choose Move File from the File pull-down menu, or press **M**. PC Shell displays a message warning you that Move will delete the source file(s) after the copy has been completed.



- Select Continue to proceed or Exit to end the move command.

***Note:** If you are using the Two List Display, proceed with step 4. If you are using the Single List Display proceed to step 5.*

4. PC Shell asks you if the second window display is the one you want to move the selected file(s) to. If so, select Yes.

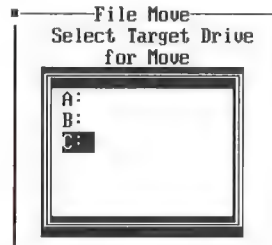


The file(s) are moved to the new location, and the File Move dialog box is displayed, showing you the file being moved and the path of the new location. Upon completion you are returned to the main PC Shell screen.

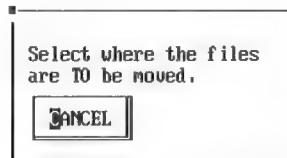
- If the second window display is not the one you want to move the selected files to, select No. Proceed to step 5 to continue with the drive and/or subdirectory selection process.

Selecting Cancel ends the move process and returns you to the main PC Shell screen.

5. The File Move dialog box asks you to select the target drive to move the file(s) to.

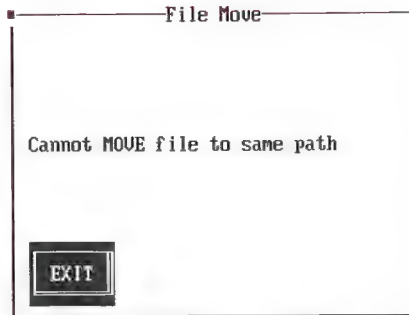


6. To proceed, select the target drive by pressing a drive letter, or press ESC to end the move process. If the target drive contains subdirectories, they will be displayed in the Tree window. A message appears for you to select the subdirectory in which the file(s) are to be moved.



7. From the Tree Window select the subdirectory to move the file(s) to, or select Cancel to end the move. PC Shell will move the file(s) to the new target location, deleting the original source file(s). Upon completion you are returned to the main PC Shell screen.

Note: *If the same subdirectory or drive is selected to move the file(s) to, the File Move dialog box below is displayed with the message "Cannot MOVE file to same path." Select Exit to return to the main PC Shell screen.*



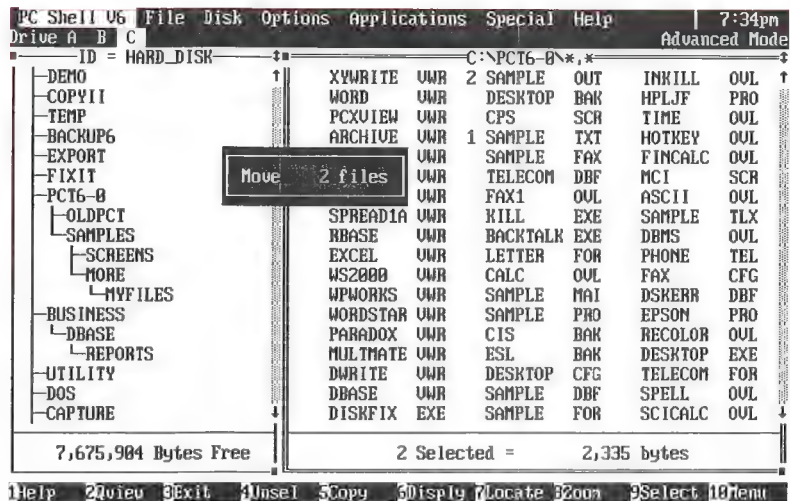
❑ To move file(s) using the mouse:

Like Copy, PC Shell can move file(s) by dragging the selected file(s) from one subdirectory or drive to another, with simple mouse movements.

❑ To move file(s) using Single List Display:

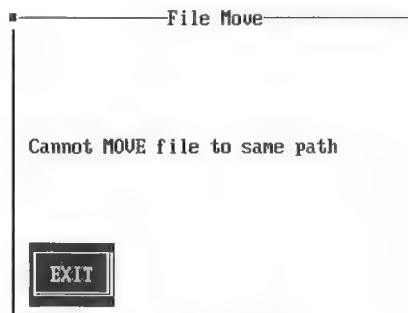
Use the Single List Display to move file(s) on the same drive, from one subdirectory to another.

1. Select the directory containing the files to be moved from the Tree Window (click in the Tree Window with the mouse.)
2. From the File List window, select the file(s) to be moved by clicking on them with the mouse.
3. Position the mouse pointer on one of the selected files. While holding down the CTRL key from the keyboard, click the left mouse button and hold down the mouse button on the file, then drag the selected file(s) to the target subdirectory in the Tree Window . As you begin dragging the mouse, a small move box showing the number of files you are moving appears and moves with the mouse cursor.



4. When you release the mouse button over the selected subdirectory name in the Tree window, PC Shell displays a message for you to confirm that the file(s) are to be moved. When you select Continue, the move operation automatically starts. Pressing Exit cancels the operation.

Note: If the selected file(s) to move exist in the same target subdirectory, the File Move dialog box will be displayed with the message "Cannot MOVE file to same path." Select Exit to return to the main PC Shell screen.



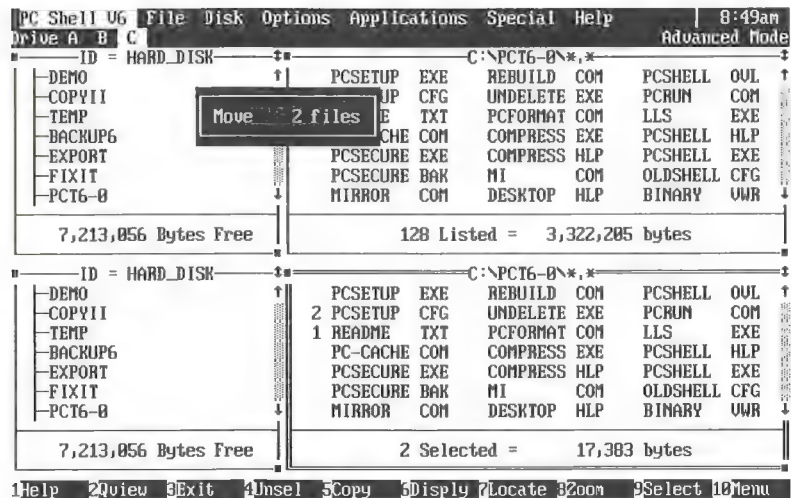
PC Shell will move the file(s) to the new target location, deleting the original source file(s). Upon completion you are returned to the main PC Shell screen.

□ To move file(s) using the Two List Display:

Use the Two List Display to move file(s) to a different drive or from one File List window to another.

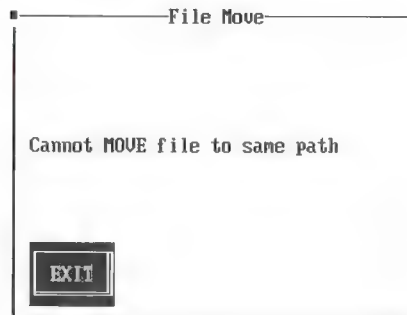
Note: All move procedures which can be performed with the Single List Display, can also be performed with the Two List Display.

1. Select the Two List Display from the Modify Options pop-up menu on the Options menu. PC Shell will open a second set of windows.
2. Select the directory containing the file(s) you want to move from the Tree Window (use the TAB key or click in the Tree Window with the mouse.)
3. From the File List window select the file(s) to be moved, using the cursor keys and ENTER, or clicking with the mouse.
4. Position the mouse pointer on one of the selected files. While holding down the CTRL key from the keyboard, click the left mouse button and hold down the mouse button on the file, then drag the selected file(s) to the target subdirectory in one of the Tree List windows or the other File List window. As you begin dragging the mouse, a small move box showing the number of files you are moving appears and moves with the mouse cursor.



5. When you release the mouse button over the selected subdirectory name in the Tree Window, PC Shell displays a message for you to confirm that the file(s) are to be moved. When you select Continue, the move operation automatically starts. Pressing Exit cancels the operation.

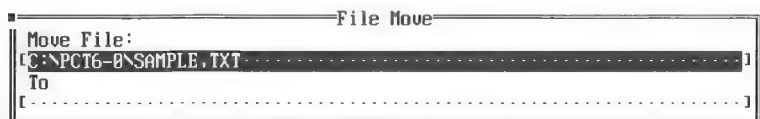
Note: If the selected file(s) to move exist in the same target subdirectory, the File Move dialog box is displayed with the message "Cannot MOVE file to same path." Select Exit to return to the main PC Shell screen.



PC Shell moves the file(s) to the new target location, deleting the original source file(s). Upon completion you are returned to the main PC Shell screen.

☐ To move files with windows hidden:

Choosing the Move File command with windows hidden will bring up a dialog box requesting the necessary information:



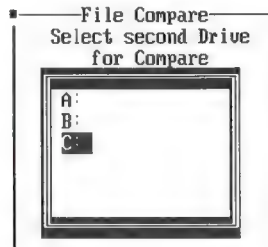
Type the path and name of the file you want to move and the path and name for the file's destination.

Comparing Files

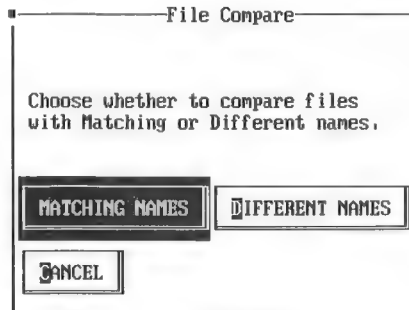
The Compare File command allows you to compare two separate files to see if they're identical. You can also compare several pairs of files at once. The files can have matching or different file names, can be on the same disk or different disks, or can be in the same directory with different file names.

❑ To compare files:

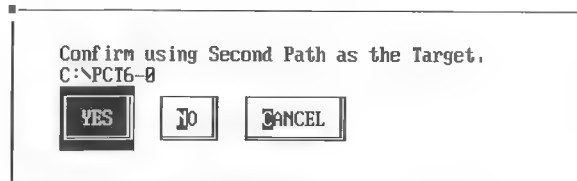
1. Select the file(s) to compare. The selected file(s) will be compared with the file(s) in the directory that you select later in this procedure.
2. Choose Compare File from the File pull-down menu. The File Compare dialog box is displayed. If the Two List Display is active, proceed to step number 4.



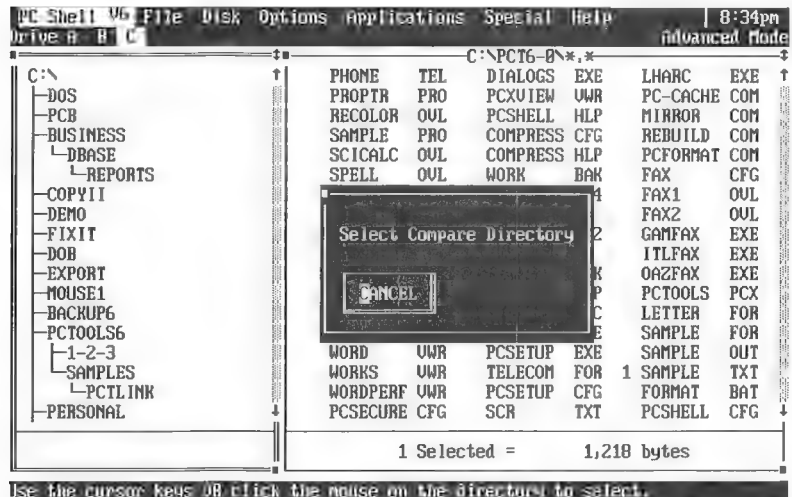
3. Select the drive that contains the file(s) to be compared by pressing the drive letter or clicking on the drive letter with the mouse, or press Esc to end the compare. The following dialog box is displayed.



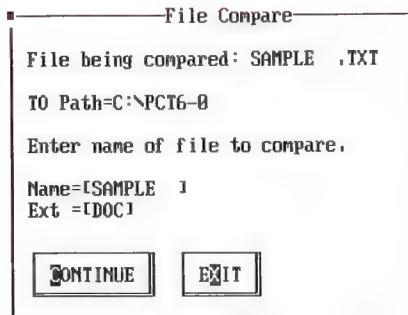
4. Select either Matching Names or Different Names to continue. Selecting Cancel ends the procedure. If you are using the Two List Display, PC Shell asks you if the second window is the one containing the files you want to compare. If so, select Yes.



5. If the drive contains subdirectories, the Select Compare Directory dialog box is displayed and the Tree Window is activated for you to select a directory. Select the directory that contains the files you want to compare. Cancel returns you to the main PC Shell screen.



6. If Matching Names is selected, the File Compare dialog box is displayed and the files are compared. If Different Names is selected, the File Compare dialog box is displayed, prompting you to enter the name of the file to be compared. Type the name and extension of the file to be compared. Select Continue to proceed or Exit to end the compare.



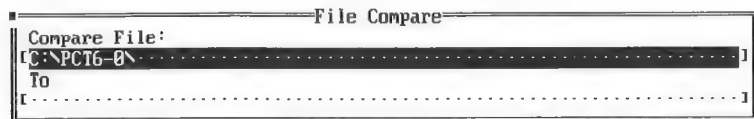
Note: The File Compare dialog box opens and the files are compared. If the files differ, the File Compare dialog box notifies you. The dialog box also displays in which sector and at which offset (the position in the sector) the difference was found. The ASCII value of each difference is also displayed.

7. Selecting Continue will step through the compare process for each difference.

If you selected more than one file, each is processed in turn. After all files are processed, PC Shell returns to the main PC Shell screen.

☐ To compare files with windows hidden:

Choosing the Compare File command with windows hidden will bring up a dialog box requesting the necessary information:



Type the path and name of both files you want to compare.

Renaming Files

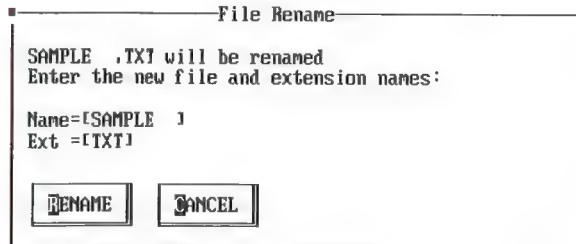
The Rename File command allows you to rename files. You can change the name of a single file or multiple files.

☐ To rename a file:

1. Select the file(s) you want to rename.
2. Choose Rename File from the File pull-down menu.

Note: If you have multiple files selected, skip ahead to step 5.

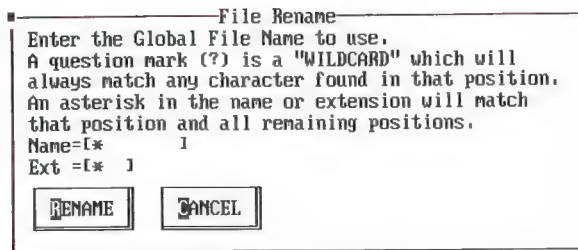
3. With one file selected, the File Rename dialog box appears with the current file name and extension displayed in the name and extension fields.



4. Type in the new file name and extension and select Rename to rename the selected file. Cancel ends the rename process and returns to the window where you invoked Rename.
5. If you have more than one file selected, the following dialog box appears allowing you to change file names and/or extensions singly or globally. For example, if you have selected all your word processing documents and they have the extension .TXT, you can easily change all of the extensions to .DOC.

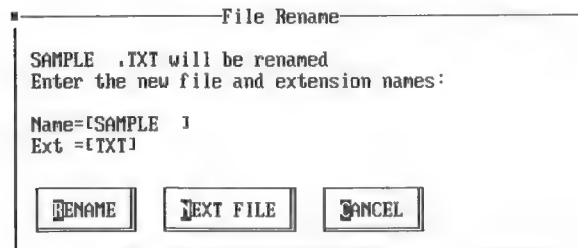


6. Choose one of the following command buttons:
Global: displays the following dialog box for you to rename all of the selected files:



- Type the name and/or extension you want to change to in the Name and Ext text boxes respectively, and select Rename. If you are renaming all .TXT files to .DOC, you would enter * in the Name field and DOC in the Extension field.

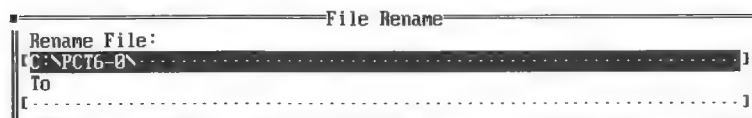
Single: displays the following dialog box so you can rename files one-by-one.



- Type the name and/or extension you want to change in the Name and Ext text box and select Rename. Selecting Next File displays the next selected file without renaming the current one. Cancel returns you to the main PC Shell screen, or if you were in the File Locate window when you invoked Rename File, you will be returned to that window.

☐ To rename files with windows hidden:

Choosing the Rename File command with windows hidden will bring up a dialog box requesting the necessary information:



Type the path and name of the file you want to rename and the path and new file name.

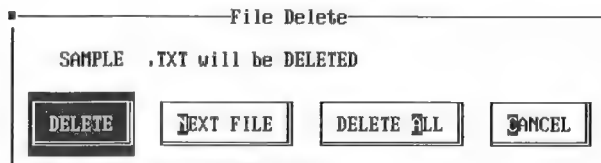
Deleting Files

The Delete File command allows you to delete a single file or a group of files at once. Unlike the DOS Delete, PC Shell's Delete can erase files marked with the attributes READ-ONLY, SYSTEM or HIDDEN. Please refer to the Attribute Change command for more information on attributes.

Note: Deleting system files could cause your hard drive to not boot. Be careful when deleting files with the extension .SYS.

❑ To delete a file:

1. Select the file(s) you want to delete.
2. Choose Delete File from the File pull-down menu.
The File Delete dialog box is displayed with the name of the first file selected. If more than one file is selected, four choices are also displayed: Delete, Next File, Delete All and Cancel. If one file is selected, only Delete and Cancel are displayed.



3. Select any of the following commands:

Delete: deletes the file listed.

Next File: skips this file and displays the next file.

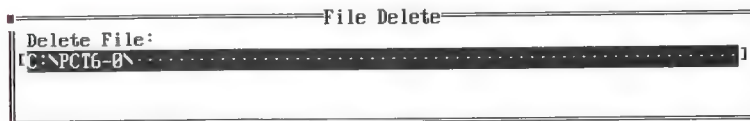
Delete All: deletes all files selected without individual confirmation.

Cancel: ends the delete process and returns to the main PC Shell screen.

PC Shell deletes the file(s) selected and returns you to the main PC Shell screen.

❑ To delete files with windows hidden:

Choosing the Delete File command with windows hidden will bring up a dialog box requesting the necessary information:

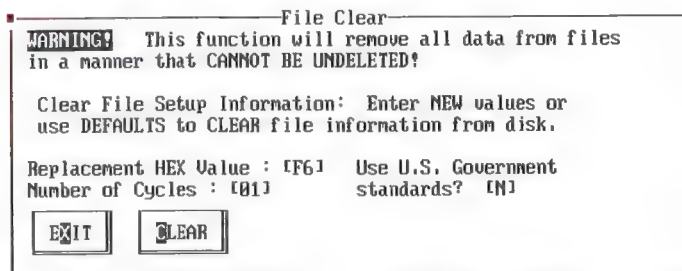


Type the path and name of the file you want to delete.

Clearing Files

When you delete a file with PC Shell or DOS, the file name is removed from the directory structure, but the data remains on the disk until another file uses that disk space. The Clear File command deletes the selected file(s) and then writes a user definable bit pattern on the disk where the file used to be.

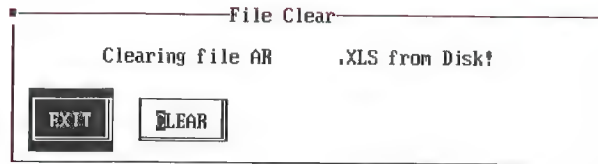
1. Choose Clear File from the File menu.
The File Clear dialog box appears.



2. Select the HEX value to be written in each byte of the file.
3. Select the number of times (cycles) the bit pattern will be written.

The US government standard option writes varying byte patterns multiple times to file.

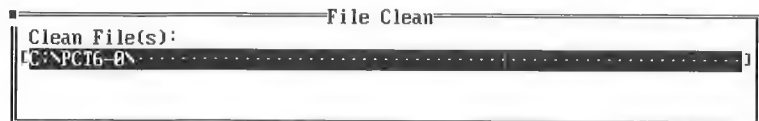
4. Select Clear to erase the file.
A second dialog box appears to confirm your decision.



5. Select Clear to permanently erase the file or Exit to cancel the operation.

☐ To clear files with windows hidden:

Choosing the Clear File command with windows hidden will bring up a dialog box requesting the necessary information:



Type the path and name of the file you want to clear.

Undeleting Files

The Undelete command found on the File menu allows you to recover files that have been deleted (whether accidentally or intentionally). Undelete can also recover deleted subdirectories. If you accidentally delete a file, you should always use Undelete immediately to recover the file before any information is lost, or overwritten. Undelete can also recover data that no longer has a file name in the directory. You can even reorder the clusters you select during a file create to give you maximum flexibility in recovering lost data.

Note: On floppy disks, we suggest that you always copy the disk containing the file you want to undelete onto a new disk and undelete the file from the new disk. (To do this you must use a disk copy program, or PC Shell's Disk Copy command, rather than a file copy program, as file copy programs cannot copy deleted files.) By doing this, you cannot inadvertently damage your original copy of a disk. Once the undelete is successful, you can copy the undeleted file from the backup disk to the original.

PC Shell has three methods for recovering deleted files and subdirectories:

- Delete Tracking Method
- Standard DOS Method

- Create a File Method

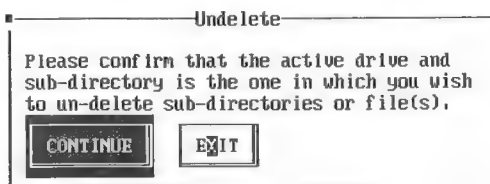
Each method is described in order.

The Delete Tracking Method of File Undeletion

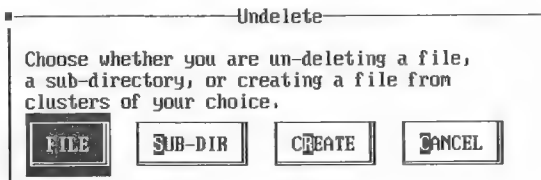
The Delete Tracking method works by installing a small resident program with the Mirror program each time you turn on your computer. For best results on undeleting a file, we recommend installing the Delete Tracking option with the Mirror program in your AUTOEXEC.BAT file. Please refer to the Mirror chapter for more information on installing the Delete Tracking option.

Note: *If you use Install with our recommended options to install PC Shell on your hard disk, this has been done automatically. Whenever DOS deletes a file, the resident program saves the deleted file's address information in a special file called PCTRACKR.DEL in the Root directory of your hard disk. If your hard disk is partitioned, the PCTRACKR.DEL file resides in the first partition; unless you have added the necessary parameters to "mirror" each partition. The Delete Tracking method can even recover fragmented files, providing the data has not been overwritten.*

1. Select the drive and subdirectory that contains the file(s) to undelete.
2. Choose Undelete File from the File menu. The following dialog box appears.

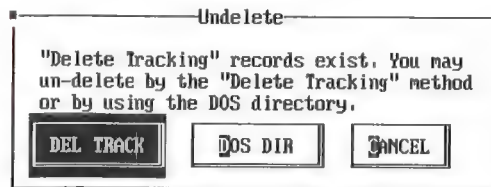


3. Select Continue to confirm the drive and subdirectory selection or Exit to return to the main PC Shell screen.



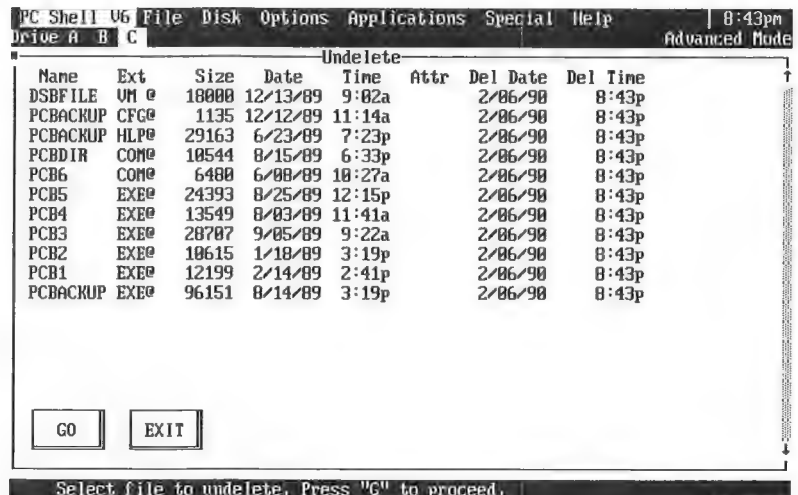
- Select whether you will be undeleting a File or a Subdirectory. The Undelete dialog box appears. Cancel will return you to the main PC Shell screen.

Note: Subdirectories are undeleted in the same manner as files. Please follow the same procedure to undelete a subdirectory as you would to undelete a file. In other words, first recover the subdirectory, then recover the files in it.



- In the Undelete dialog box, select the Del Track option to use the Delete Tracking method of file undeletion. Select Cancel to terminate the Undelete process and return to the main PC Shell screen.

Note: If the preceding dialog box does not appear, you must use the DOS DIR method of file recovery. Please see "The Standard DOS Method of File undeletion," in the following section for more information.



Files that can be undeleted will be listed with the first file highlighted for undeletion. You may move to different files with a mouse using

the Scroll bar on the right, or use the arrow keys on the keyboard. Once the file is highlighted for undeletion, select GO or press G to undelete it. After all desired files have been undeleted, you are returned to the main PC Shell screen. To quit and return to the main PC Shell screen select Exit at any time.

Note: The "@" character next to the file name indicates whether or not PC Shell can automatically undelete the file. If you are using the Delete Tracking method this means that none of the file's clusters are currently being used by any other files. If the file does not have an "@" next to it, you cannot recover using the Delete Tracking method. The "*" character next to the file name means that some of the clusters are available, but not all of them. If you don't see either of the characters, it means recovery is not possible.

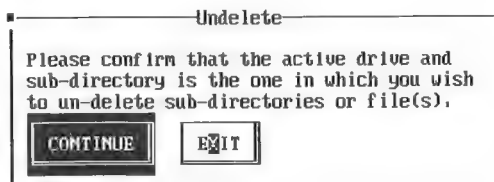
After you've undeleted a file, you should try using the file to see if the undelete was successful.

The Standard DOS Method of File Undeletion

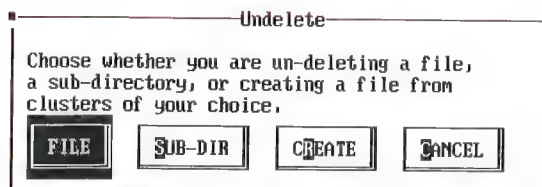
Use this method when the Delete Tracker was not installed prior to deleting the file.

Note: The Delete Tracking method is always more reliable, so we suggest you use it, rather than the DOS method whenever possible. To use the Delete Tracking method, you must be using Mirror with the /T option. Please refer to the Mirror chapter for more information on installing the Delete Tracking option.

1. Select the drive and subdirectory that contains the file to undelete.
2. Choose Undelete File from the File menu. The Undelete dialog box appears.



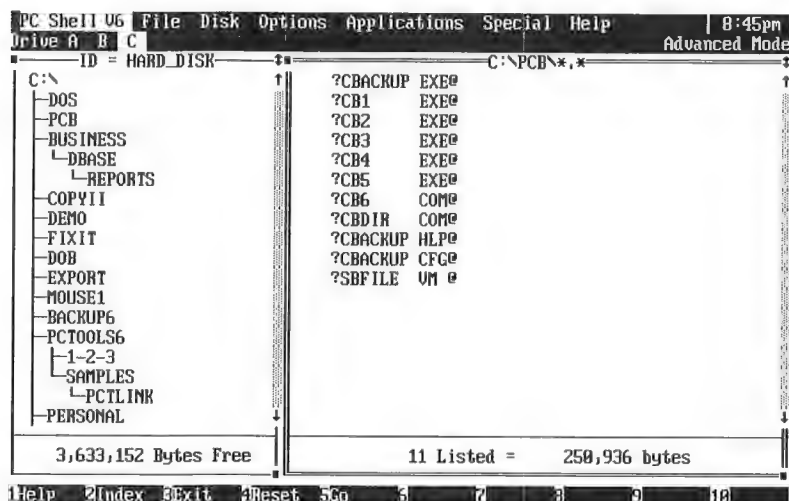
3. Select Continue to confirm the drive and subdirectory selection or Exit to return to the main PC Shell screen. The following dialog box appears.



4. Select whether you will be undeleting a File or a Subdir. Cancel will return you to the main PC Shell screen.

Note: Subdirectories are undeleted in the same manner as files. Please follow the same procedure to undelete a subdirectory as you would to undelete a file.

5. Select DOS DIR to use the Standard DOS Method of file undeletion. The main PC Shell screen appears for you to select the files to undelete.



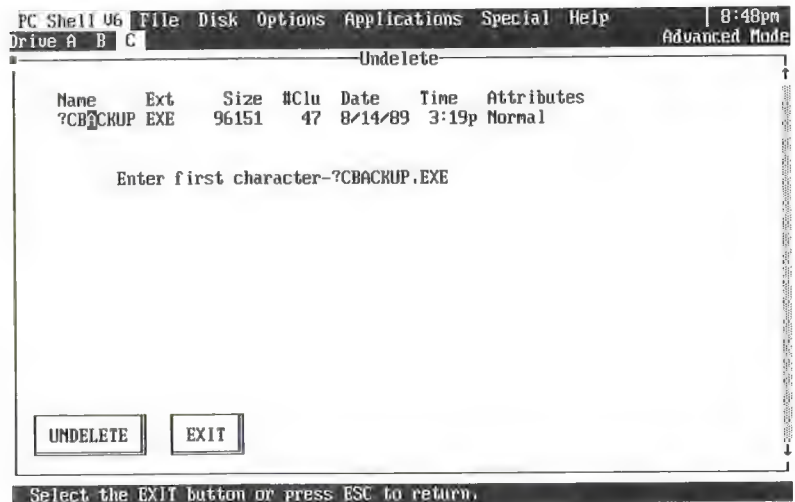
6. Select the file(s) to undelete from the File List window. After the files are selected to undelete, select F5 or click on Go on the bottom line to proceed. To unselect all selected files, press F4 or click on Reset on the bottom line.

Note: If there are no files listed, you may not be looking in the correct Subdirectory, or no files have been deleted, or the deleted file entries were completely overwritten with new files. If files do exist on the screen, the first character of the file name will be missing and

you will need to supply it. You may also see one of the following characters next to the file name:

- The "@" character next to the file name indicates whether or not PC Shell can automatically undelete the file. You may use the Automatic Method of file recovery.
- The "*" character next to the file name means that some of the clusters are available, but not all of them. This will require the Manual Method of recovery.
- If you don't see either of the characters, it means recovery is not possible.

7. The file to undelete will be displayed in the Undelete dialog box along with general file information.



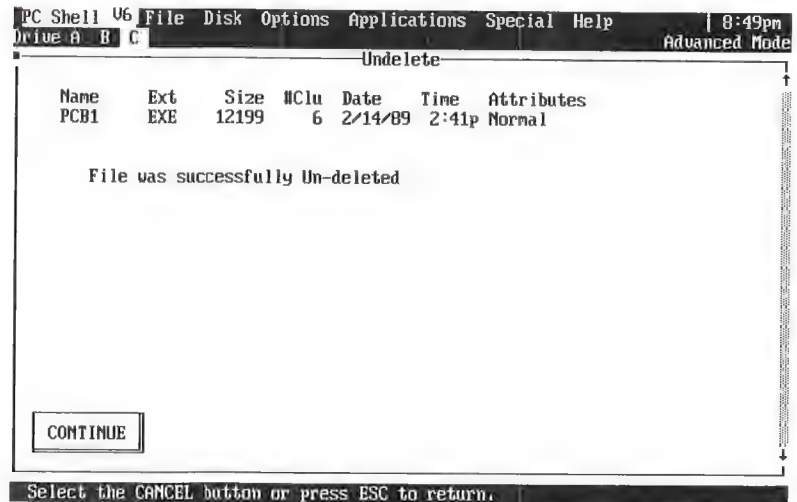
8. Enter the first letter of the file name and select Undelete to proceed or Exit to select the next file you want to recover. If no other files exist to undelete, Exit will return you to the main PC Shell screen.

Note: If the file to undelete can not be automatically recovered, you must use the manual method of recovery.

9. Select Automatic if the @ symbol exists next to the file name or Manual if it does not. Cancel will return you to the main PC Shell screen.

Automatic Method of Recovery

If the file can be undeleted with the Automatic Method of Recovery, the Undelete dialog box will inform you that the file was successfully undeleted and allow you to select Continue to proceed with another file for undeletion. If the file cannot be recovered using the Automatic Method of Recovery, you will be prompted to use the Manual Method of Recovery.

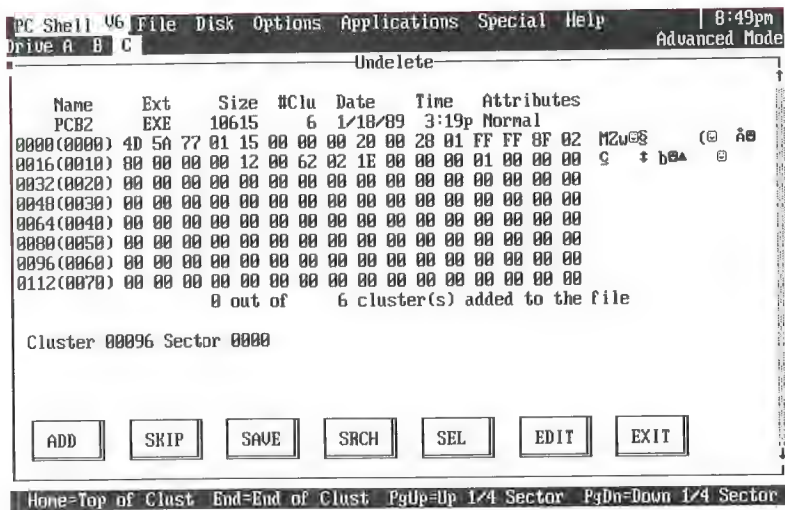


Once all selected files have been successfully undeleted, you are returned to the main PC Shell screen. Selecting Exit will end the current file undeletion and return you to the next file to undelete or the main PC Shell screen, depending on if any additional files are left to undelete.

After you've undeleted a file, you should try using the file to see if the undelete was successful.

Manual Method of Recovery

When using the Manual Method of Recovery, you'll see a display similar to the View/Edit display. PC Shell displays, in order, the sectors that most likely belong to the file.

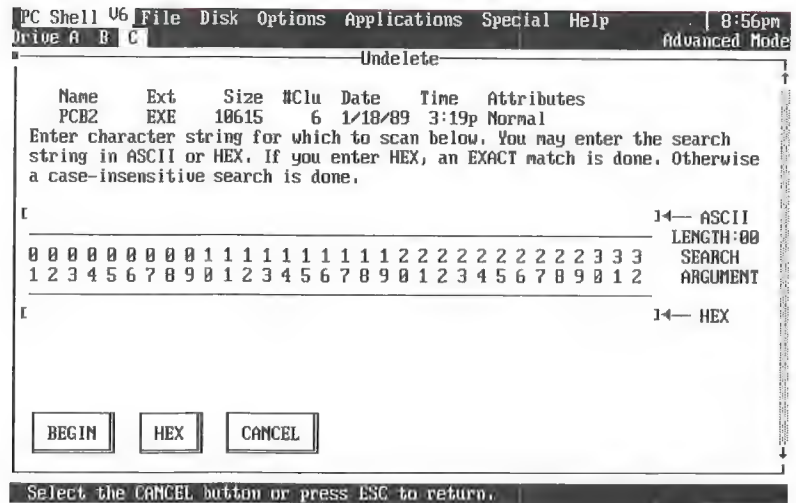


The following keyboard commands are available for Manual File Undeletion:

- PgUp:** moves the display to the previous quarter sector
- PgDn:** moves the display to the next quarter sector.
- Home:** moves to the beginning of the cluster.
- End:** moves to the end of the cluster.

The following commands are available for Manual File undeletion:

- Add:** adds the cluster to the file and moves to the next cluster.
- Skip:** skips to the next cluster, not adding the cluster to a file.
- Save:** saves clusters to the file being undeleted.
- Srch:** displays the following Undelete dialog box and allows you to search for additional clusters that may contain information on the file to undelete.



- To enter a string of up to 32 ASCII characters to search for, type the characters on the default ASCII line. The search is not case-sensitive. That is, upper and lower case letters are treated the same. The corresponding hexadecimal values will appear on the line marked HEX.
- To enter hex values (up to 32 characters), select the HEX command button and type in the hexadecimal values you want. This type of search is case-sensitive. If you enter invalid hex values, PC Shell notifies you with a beep tone.

Select Begin to start the search. PC Shell will find and display the location of any matching character strings. To continue searching for another occurrence of the string after a match is found, select Search. Exit returns you to the main PC Shell screen

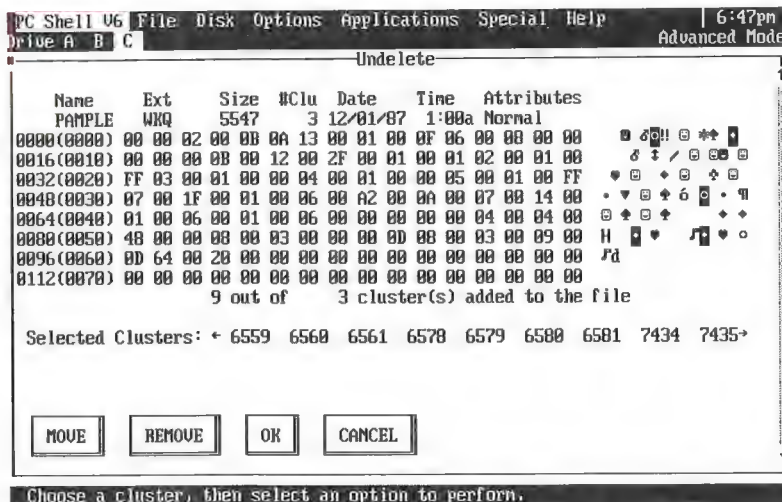
Sel: Allows you to enter and select a new cluster. Select Undelete to select the new cluster and return to the Undelete dialog box or Exit to terminate the cluster move.

Edit: Allows you to reorder added clusters to a deleted file. You may move or remove an added cluster. Once the move or remove is finished, select OK to proceed with the undeletion. Selecting Cancel will return you to the main Undelete dialog box with no action taken.

- To Move a cluster, highlight the cluster to be moved with the Left or Right arrow keys or mouse. Select Move and move the highlighted cluster to a new position in the list. Select OK

when the cluster is relocated. Selecting Cancel will terminate the move process.

- To Remove a cluster, highlight the cluster to be removed with the Left or Right arrow keys or mouse. Select Remove. The cluster is now removed from the list.



Exit returns you to the Undelete dialog box. Select Continue to return to the main PC Shell screen.

Note: The total number of clusters that need to be added to complete the file is displayed along with the current number of clusters being added. This information is useful in determining the correct cluster count as the new file is built. The cluster and sector number is also displayed.

1. Select Add if the displayed cluster appears to be part of the deleted file. This adds the cluster to the file being recovered, then shows you the next cluster to consider.
- Select Skip if you don't want to add the current cluster to the file. The next cluster is displayed.

If you accidentally add a cluster to the file and then decide it wasn't the right one, you can remove it by selecting Edit.

If your hard disk was fragmented, the next cluster PC Shell picks for you might not be the right one. If you are trying to undelete a text file, you might be able to find the next cluster

using the Srch command. You can also reorder the clusters in the file with the Edit function.

If you look at the text at the bottom of the current cluster using the cursor movement keys, you might see the beginning of a sentence, for example "If your hard disk was frag." Selecting Add adds this to the file and displays the next cluster. If the next cluster doesn't start with the characters "mented" (the rest of the word "fragmented"), you know this couldn't be the right cluster. So instead of selecting Add again to add this incorrect cluster, select Srch to search for the proper text on the hard disk. When it is found, you can continue adding clusters, selecting Add until the file is completely recovered.

After you have recovered your file, we recommend that you run Compress often to compress the sectors, placing them in one contiguous part of the hard disk and use the Delete Tracking option of Mirror so that you won't have to manually recover files in the future.

2. Select Save when you think you've selected all of the clusters that belong to the file. This rebuilds and saves the file using the clusters you've selected.
3. Select Exit to return to the Undelete dialog box. It will inform you if the file was successfully undeleted. Select Continue to return to the main PC Shell screen.

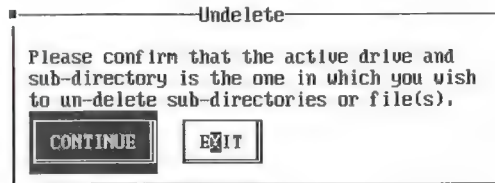
After you've undeleted a file, you should try using the file to see if the undelete was successful. If the wrong clusters were selected, the file will not contain the same information as the original file. If you have problems with an undeleted file, you can delete it and try to undelete it again, choosing different clusters this time.

The Create File Method of File Undeletion

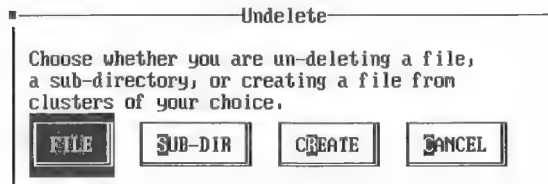
If you are reasonably sure that the file you want to undelete is still on the disk, but no file name is found by either the Delete Tracking method or the Standard DOS method of undeletion, then the Create File method may offer your best hope of recovering the data. The Create File method will build a new file name and then allow you to add clusters to it.

Note: ASCII (text) files are the intended files for the Create File method. Binary files usually cannot be pieced back together as it is too hard to determine which clusters to add.

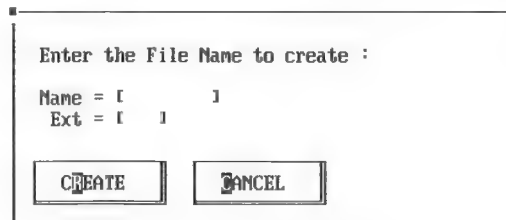
1. Select the drive and subdirectory that contains the file to undelete.
2. Choose Undelete File from the File menu. The Undelete dialog box appears.



3. Select Continue to confirm the drive and subdirectory selection or Exit to return to the main PC Shell screen. The following dialog box appears.



4. Select Create from the Undelete dialog box and the following dialog box appears. Cancel terminates the undelete process.



5. Enter the desired file name and extension for the new file. Select Create to build the new file or Cancel to return to the main PC Shell screen.

Refer to the “Manual Method of Recovery” section, preceding this section, to continue building and editing the new file.

Searching for Text in Files

The Text Search command allows you to look for either an ASCII or HEX character string in all files in the window, selected files in the window, or unselected files in the window. The window can be a File List window or a Locate window. You can then select what to do once a file is found with the matching text.

❑ To search for text:

1. Select the file(s) you want to search. Each file is searched in the order chosen.
2. Choose Text Search from the File pull-down menu. PC Shell displays the File Search dialog box.

Text Search

Enter case insensitive text to search for:
 [.....]
 in 1 file.

Search:	If found:
() All files	() Select file and continue
(*) Selected files	(*) Pause search
() Unselected files	

Notice the available function keys and associated commands on the bottom line:

1Help 2Index 3Exit 4 5Start 6Text 7Search 8Found 9Hex 10

F5 starts the search; F7 takes you to the group of search options; F8 takes you to the group of found option; then F6 takes you to the text entry line. F9 toggles between hexadecimal and ASCII modes.

3. Enter a string of ASCII characters to search for in the text box.

Note: The ASCII search is not case-sensitive. That is, you can enter text in any combination of upper- or lower-case letters. The maximum size of a search string is 32 characters.

- To enter HEX values, press F9 or click on the Hex command on the bottom line. This changes the dialog box to accept hex strings:


```
Text Search
Enter case sensitive hex argument to search for:
[ ..... ]
( ..... )
in 1 file.

Search:          If found:
( ) All files    ( ) Select file and continue
(*) Selected files (*) Pause search
( ) Unselected files
```

- Type in the desired HEX values. This type of search is case sensitive. If you enter invalid HEX values, PC Shell notifies you with a beep. The corresponding ASCII values are displayed below the HEX line.

Pressing **ENTER** will start the search. If you want to change the Search options:

4. Press **TAB** or **F7** to move to the group of "Search" options.
5. Select one of the following options using the Up and Down arrow keys and **ENTER**, or press the highlighted letter of the option. You can also select the option by clicking on the option button with the mouse.

If you do not want to change the Search option, press **TAB** again or **F8** to move to the "If found" options and go to step 6.

All files: searches all the files in the current subdirectory for the matching text.

Selected files: searches only the selected files for matching text.

Unselected files: searches the unselected files for matching text.

6. Select one of the "If found" options by using the up and down arrow keys and then pressing **ENTER**, or pressing the highlighted letter of the option. You can also select the option by clicking on the option button with the mouse.

If you do not want to change the If found options, press **TAB** or **F7** and go to step 7.

Select file and continue: marks a file as selected that contains the search text and then continues the search. When

the requested files have all been searched, you will be returned to the window where you started, and the files that contain the search text will be marked as selected.

Pause search: pauses the search process after a file is found that matches the text.

7. Press ENTER, F5, or click on "Start" on the bottom line to start the search.
 - If the Pause search option was selected, once a file is found containing the search text, the search pauses and the bottom line shows the following options.

```
1Help 2Index 3Exit 4      5      6Select 7Search 8Edit  9Nextf 10
```

- Choose any of the options by pressing the specified function key or clicking on the option with the mouse:
 - **[F6] Select:** marks the file as selected when the search has been completed on all files.
 - **[F7] Search:** continues the search in the same file.
 - **[F8] Edit:** allows you to use the Hex editor on the file. The Sector Edit display appears with the cursor on the first byte of the matching string. With the Sector Edit you can edit or view sectors. To save the changes, select **Save** or **Cancel** to end the edit. See the Hex Edit command for information on editing a sector.
 - **[F9] Next:** continues the search on the next file.

Once PC Shell has finished the search, you are returned to the window from which you invoked the Search Text command. See the example in the chapter entitled "Locating, Viewing, Launching Files" for a demonstration of how this command can be used in conjunction with the Locate File command.

The following example illustrates how Search Text works:



☐ **To find all files in the window which contain "Tom":**

1. Select the File menu and press S.
2. Enter "tom."

3. Press TAB.
4. Press A.
5. Press S.
6. Press F5.



☐ To find all files in the window which contain “Tom”:

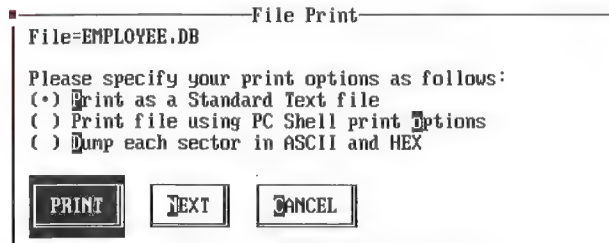
1. Choose the Text Search command from the File menu.
2. Enter “tom.”
3. Click on A.
4. Click on S.
5. Click on “Start” on the bottom line.

Printing Files

The Print File command allows you to print the contents of a file or multiple files to LPT1. (If you want to print directory listings, use the Print Directory command on the File pull-down menu.)

☐ To print a file:

1. Select the file(s) to print.
2. Choose Print File from the File pull-down menu. The File Print dialog box displays the following print options:



Print as a Standard Text File: prints a standard ASCII character text file.

Print file using PC Shell print options: lets you define the page layout for printing and then prints a standard text file.

Dump each sector in ASCII and HEX: prints sectors in both hexadecimal and ASCII format.

3. Select the print option and Print to proceed. If multiple files were selected, you may skip to the next file by selecting Next, or to quit and return to the main PC Shell screen, select Exit.

❑ **To print using the print options:**

If you selected "Print file using PC Shell print options" from the previous File Print dialog box, the following dialog box appears:

File Print

To modify the print options, use the UP, DOWN or ENTER (↵) keys to position the cursor on the field to change. Key in the new value and press ENTER (↵). Continue using the UP, DOWN or ENTER (↵) keys to skip or update the fields.

Lines per page	56	Page headings (Y or N)	N
Margin lines top and bottom	4	Page footings (Y or N)	N
Extra spaces between lines	0	Page numbers (Y or N)	N
Left margin	01	Want to stop between pages?	N
Right margin	000	Want to eject last page?	Y
The line length is 000 characters			

Number of actual lines on a page (including top/bottom margins).

PRINT

EXIT

1. Press the arrow keys or click on the appropriate option to modify any of the following Print formatting options. A description of each option is displayed as it is selected.

Lines per page: specifies the actual number of lines on a page.

Margin lines top and bottom: specifies the number of lines for top and bottom margins.

Extra spaces between lines: specifies the number of blank lines to leave between each printed line.

Left Margin: specifies the first print position of a line.

Right Margin: specifies the last print position of a line.

Page headings: prints a heading on each page. This will prompt you to enter the header text.

Page footings: prints a footer on each page. This will prompt you to enter the footer text.

Page numbers: numbers each page.

Stop between pages: used for printing single sheets.

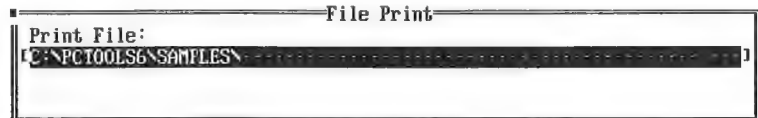
Eject last page: eject last page printed.

2. Enter the new value.
3. When finished changing the Print Options, select Print to start printing or Exit to return to the main PC Shell screen.

PC Shell prints the first file selected and returns to the File Print dialog box for each subsequent file to be printed.

☐ To print files with windows hidden:

Choosing the Print File command with windows hidden will bring up a dialog box requesting the necessary information:



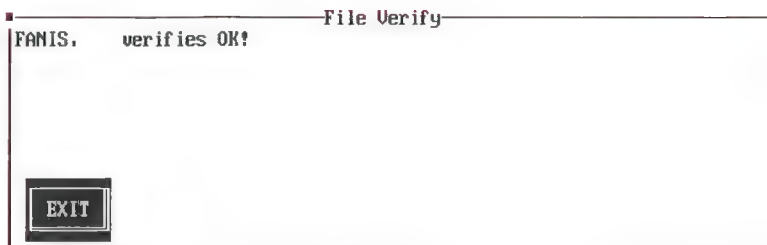
Type the path and name of the file you want to print.

Verifying Files

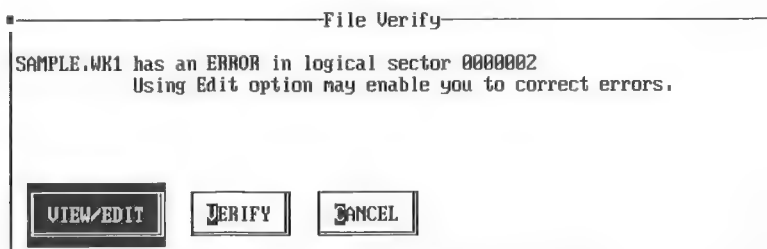
Verify File reads all the sectors in a file to make certain the entire file can be read without any errors. The Verify command will read a single file or group of files.

☐ To verify a file:

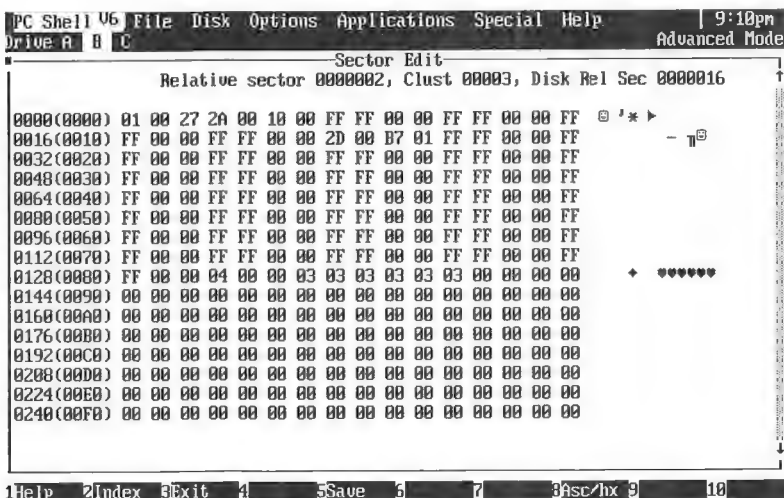
1. Select the file(s) you want to verify.
2. Choose Verify File from the File pull-down menu. The sector number changes as Verify works its way through the file. If there are no errors, the File Verify dialog box tells you that the file is OK. If you selected more than one file to verify, the next file begins verifying. Select Exit to return to the main PC Shell screen.



Note: If an error is found in a file with Verify, the File Verify dialog box displays the logical sector that contains the error. You can select to repair the data.



- To repair the sector select View/Edit from the File Verify dialog box or press F7.
The Sector Edit dialog box appears. Select Verify or F5 to continue verifying files or Cancel or F3 to terminate the procedure.



4. Use the Up, Down, Left and Right arrow keys, or scroll if you have a mouse, to move the cursor.
5. Position the cursor over the first byte you want to change. You can edit either the HEX or ASCII bytes by moving the cursor into the HEX or ASCII areas and typing new values.

***Note:** If you prefer to make changes to the ASCII column instead of the HEX column, press F8 or click on Asc/Hx on the Message Bar. The corresponding values on the HEX column will also change.*

6. Type in the new Hexadecimal or ASCII values. They replace the original bytes at the cursor position and appear in color or highlighted.
7. Select Save or press F5 to write the change(s) to the disk or ESC if you don't want to make the change(s). Selecting either Save, Exit, or ESC returns you to the main PC Shell screen.

This procedure makes the sector readable. Unfortunately, some of the information contained in the newly rewritten sector may still be invalid. Once the data is corrupted, complete data recovery is unlikely, but this will recover as much of the data as possible.

☐ **To verify files with windows hidden:**

Choosing the Verify File command with windows hidden will bring up a dialog box requesting the necessary information:



Type the path and name of the file you want to verify.

Changing File Attributes

The Attribute Change command allows you to change file attributes of the selected files as well as the date and time of the file(s).

The Available Attributes:

Read Only (R) protects the file by allowing you to only read the file. You may not make any changes to the file or delete it.

Hidden (H) makes the file “invisible” so that it is not listed when you enter the DOS directory command. PC Shell, however, will display hidden files.

System (S) makes the system file “invisible” so that it is not listed when you enter the DOS directory command.

Archive (A) is used by DOS Backup and Central Point Backup to determine which files to back up. Whenever you make a change to a file, DOS sets its Archive bit, meaning the file has changed and should be backed up during the next backup session.



You should not change the attributes of copy-protected files or system files. Changing these attributes can result in programs not running or your hard disk not booting.

❑ To Change Attributes or Date/Time:

1. Select the subdirectory that contains the file(s) whose attributes or date and times you want to change.
2. Select the file(s) you whose attributes or date and time you want to change.
3. Choose Attribute Change from the File pull-down menu. PC Shell displays the File Attribute dialog box.

File Attribute						
1	SALES	DB	...A	2:43p	9/15/89	2351
2	MYDATA1	RBF	...A	12:08p	9/22/89	1889
3	EMPLOYEE	DB	...A	2:43p	9/15/89	1292
4	JONES1	012	...A	4:22p	10/12/89	1631
5	BENNETT1	011	...A	5:01p	10/11/89	1505
6	EMPLOYEE	DBF	...A	5:12p	9/07/89	12288
7	SAMPLE	DBF	...A	3:38p	9/01/89	864
8	ACCOUNT	XLS	...A	12:00p	7/31/88	3191
9	ADDRESS	XLS	...A	12:00p	7/31/88	4220
10	MEMO	DOC	...A	1:13p	10/13/89	2048
11	XYWRITE	DOC	...A	5:25p	10/12/88	3215
12	BOXES	DOC	...A	5:15p	2/12/88	3806
13	DEMO	DOC	...A	5:15p	2/12/88	5362
14	MEDIA	DOC	...A	3:51p	1/17/89	5760
15	DRDOS	DOC	...A	3:24p	6/21/89	2816
16	ROTATE	WR1	...A	12:00a	2/29/88	4896

When finished select,

The following information is displayed:

File name and extension

Attributes:

H means hidden file.
S means system file.
R means read-only file.
A means the archive bit is set.

Time/Date: the file's current time and date.

Size: the file size.

4. To move around in the Attribute dialog box, use the Up, Down, Left and Right arrow keys. You may also use the Scroll bars or the mouse to move to the desired file.

Note: When changing attributes or time and dates, select the appropriate change key and the down arrow key to make changes quickly to a list of files.

☐ To change file attributes:



- Click on the attribute letter to toggle the attribute on or off.
- Press the A, H, S or R keys to toggle the selected attribute on. Pressing the A, H, S or R keys again will toggle the attribute off.

☐ To change the time and date:

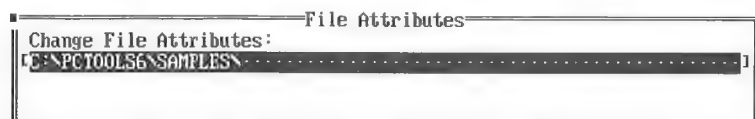
1. Move to the Date or Time field with the arrow keys or mouse.
2. Type the new date or time in the appropriate field. Dates must be entered as two digits; for example, March would be entered as 03.

☐ To dismiss the dialog box:

- Select Update to save the changes to disk or Exit to cancel your attribute changes and return to the main PC Shell screen.

☐ To change file attributes with windows hidden:

Choosing the Attribute Change command with windows hidden will bring up a dialog box requesting the necessary information:



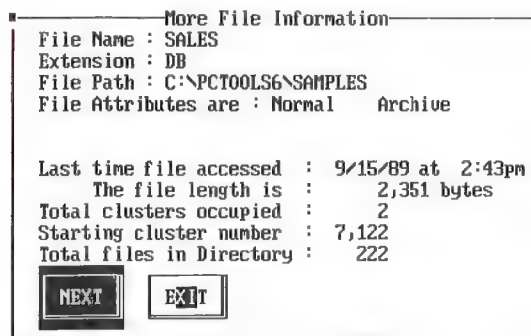
Getting File Information

Type the path and name of the file you want to change attributes for.

The More File Info command gives you specific information about a file. You may select multiple files for analysis.

❑ To get file information:

1. Select the file(s) you want information about.
2. Choose More File Info from the File pull-down menu. The More File Information dialog box appears, displaying the following file information:



3. If more than one file was selected, select Next to display information about the next file. Selecting Exit returns you to the main PC Shell screen.

❑ To get information for a file with windows hidden:

Choosing the More File Info command with windows hidden will bring up a dialog box requesting the necessary information:



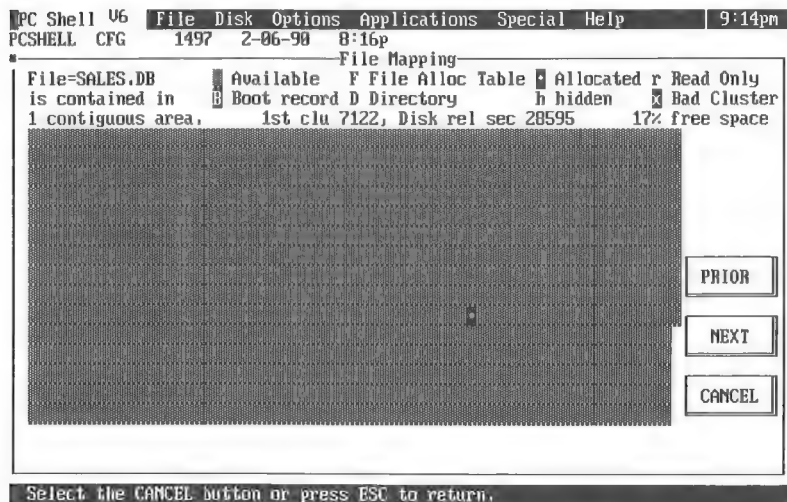
Type the path and name of the file about which you want more information.

Mapping Files

The File Map command allows you to see which clusters are allocated by specific files.

❑ To map a file:

1. Select the subdirectory you want to map. The files for that directory appear in the File List window.
2. Select the file(s) you want to map. If you don't select any files, PC Shell assumes you want to start with the first entry in the directory and map all the files contained in that subdirectory.
3. Select File Map from the Special menu. The File Map appears, displaying the location of the selected file(s) only.



Next: displays the location of the next file.

Prior: displays the location of the previous file.

Exit: returns to the main PC Shell screen.

Note: When mapping a file, if you see that the clusters are fragmented (stored in random sectors on the disk) you can use the Compress program to unfragment your hard disk. It takes longer to access a file when its clusters are fragmented due to increased movement of the drive head. Compress optimizes disk performance and makes file undeleting as reliable as possible.

Each position in the grid represents one cluster. DOS always allocates disk space for files a cluster at a time. Clusters can be different sizes depending on the disk. On single-sided floppy disks, one cluster equals one sector. On double-sided disks, one cluster

equals two sectors. On hard disks, clusters can be 4, 8 or more sectors long. Regardless of the size of a cluster for any given disk, DOS always sets aside disk space by clusters, not sectors.

For floppy disks with 40 tracks per side, PC Shell shows the corresponding track numbers above the grid (Track 0, 5, 10, 15, etc.). If you're mapping a single-sided disk, the actual sector numbers are also shown on the left. For hard disks, the clusters are shown in a large grid, without track numbers (since different hard disks use tracks and sectors in different ways).

Each space in the grid contains one of the following symbols, showing what that cluster is used for:

- [] Available:** This cluster is not being used and is available for file storage.
- B: Boot record:** This cluster contains the boot record. Every disk contains a boot record, even if it is not capable of booting DOS.
- F: File Alloc Table:** This cluster holds part of the File Allocation Table(FAT), which is used to keep track of where files are stored on the disk and which clusters are available.
- D Directory:** This cluster is part of the disk's directory.
- [•] Aliocated:** This cluster is part of a file.
- h: Hidden:** This cluster is part of a hidden file.
- r Read Only:** This cluster is part of a Read-Only file.
- [x] Bad Cluster:** This cluster has been marked as bad and is unusable.

Note: The codes in the manual may be different from screen codes, as IBM graphics characters are used to make the display more readable.

10. Locating Files

Locate File is a powerful and versatile command which allows you to locate specific files on your disk, then manipulate them individually or as a group with the PC Shell file commands. You can delete them, view them, launch an application using a located file, etc. This is a convenient way to perform commands on files that span multiple directories.

Locate File can find a specific file or files with similar names and extensions, such as your word processing or database files, no matter where they are on your drive, and display them in a window. Locate File searches the entire drive or selected directories according to your file specifications. If you use Locate File to find certain files on a regular basis, you can save the file specifications under a name, called a search group, and in future locates, select the name rather than reentering the file specifications. Locate File also has a search option which allows you to locate files containing specific characters, such as a word or phrase.

For example, you can use Locate File to find:

- all of your Lotus 1-2-3 files.
- all of your Lotus 1-2-3 files that contain the word "Payables."
- all of your WordPerfect files.
- all of your WordPerfect files that contain the phrase "Dear Mr. Dale."
- all of your .BAK files.
- all of your .EXE files.

When Locate File finds the files matching your file specifications and search text, it displays them in the Locate File window. For example, if you locate all of your Lotus 1-2-3 files that contain the word "advertising," the Locate File window appears as follows:

10. Locating Files

Located Files					
SKIPPIES	WK1	6/08/89	4:54p	8236	... C:\COPY11
LOTUS	WK1	3/09/90	3:55p	2739	...A C:\PCT6-0\SAMPLES
UP-PLAN	WK1	3/09/90	3:50p	7159	...A C:\PCT6-0\SAMPLES
SKIP2	WK1	6/05/89	7:10p	2722	...A C:\PCT6-0\SAMPLES\SCREENS
SKIPPIES	WK1	6/06/89	10:42a	2531	...A C:\PCT6-0\SAMPLES\SCREENS
VERSION1	WK1	9/05/89	12:21p	3019	...A C:\PCT6-0\SAMPLES\SCREENS
VERSION2	WK1	9/18/89	11:57a	3241	...A C:\PCT6-0\SAMPLES\SCREENS
VERSION3	WK1	10/03/89	1:06p	3241	...A C:\PCT6-0\SAMPLES\SCREENS
VERSION4	WK1	10/25/89	11:29a	3004	...A C:\PCT6-0\SAMPLES\SCREENS
LOTUS	WK1	3/09/90	3:55p	2739	...A C:\PCT6-0\SAMPLES\SCREENS
LOTUS	WK1	2/21/90	11:39a	5596	...A C:\PCT6-0\SAMPLES\MORE

11 Listed = 44,227 bytes

1Help 2View 3Exit 4Unsel 5Copy 6Display 7Locate 8Done 9Select 10Menu

Once the files are in the Locate File window, you can use the commands available on the Message Bar or from the pull-down menus: Copy, Move, Delete, Compare, etc. For example, if you want to delete some of the .WK1 files, simply select them and then delete them from the Locate File window using the Delete File command. You can also launch an application from the Locate File window the same way you can from the File List window. For example, if Lotus 1-2-3 is on the PC Shell Applications menu associated with files with the .WK1 extension, CTRL-ENTER will launch 1-2-3 and load into 1-2-3 the selected or highlighted .WK1 file in the Locate File window.

You can hotkey in and out of PC Shell and the list of located files remains in the window. If any files were selected, they remain selected through the hotkey process.

You can view the contents of files listed in the Locate File window by turning on the View Window (choose View Window from the Options menu); this opens up a View Window in the bottom half of the screen. PC Shell has viewers that display the files generated by most database, spreadsheet and word processing applications in approximate native format. It also has a viewer that displays files with the extension .PCX in graphics format, such as pictures created in PC Paintbrush. The first file selected (or highlighted, if none are selected) is displayed in the View Window. If you specified search text with the locate, the first occurrence of the search text is highlighted when you activate the viewer. In this example, a Lotus 1-2-3 file VERSION1.WK1 is displayed with the word "advertising" highlighted:

PC Shell V6 File Disk Options Applications Special Help 7:26pm
Drive A B C Advanced Mode

Located Files

File Name	Date	Time	Size	Location
1 VERSION1.WK1	9/05/89	12:21p	3019	C:\PCT6-0\SAMPLES\SCREENS
2 VERSION2.WK1	9/18/89	11:57a	3241	C:\PCT6-0\SAMPLES\SCREENS
3 VERSION3.WK1	10/03/89	1:06p	3241	C:\PCT6-0\SAMPLES\SCREENS
4 VERSION4.WK1	10/25/89	11:29a	3004	C:\PCT6-0\SAMPLES\SCREENS
LOTUS.WK1	3/09/90	3:55p	2739	C:\PCT6-0\SAMPLES\SCREENS
LOTUS.WK1	2/21/90	11:39a	5596	C:\PCT6-0\SAMPLES\MORE

4 Selected = 12,585 bytes

Lotus 123 Viewer

A4: 'Advertising Budget (copy of 1988)

	A	B	C	D	E	F	G	H
Advertising Budget (copy of 1988)								
		Jan	Feb	Mar	Apr	May	Jun	
Newspapers	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	

1 Help 2 Info 3 Exit 4 Launch 5 Goto 6 7 Search 8 Zoom 9 NextF 10 Menu

By activating the View Window, you can scroll through the viewed file.

If you want to display more of the file on the screen, you can resize and move the Locate File and View Windows.

Or you can activate and expand the View Window to full screen size using the Zoom feature, the Zoom the Active Window command from the Options menu, or the Zoom command on the bottom line:

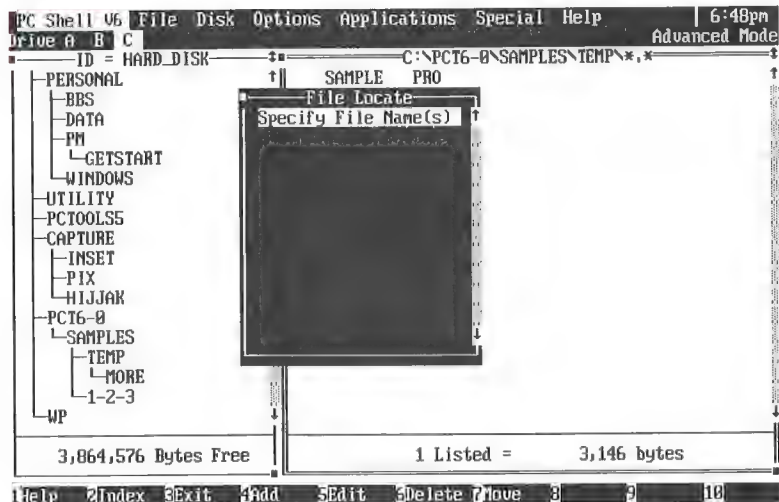
```

PC Shell V6 File Disk Options Applications Special Help | L1:Scan
VERSION1.WK1 Lotus 123 Viewer
A4: 'Advertising Budget (copy of 1988)'
      A B C D E F G H
1
2
3
4 Advertising Budget (copy of 1988)
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
1Help 2Info 3Exit 4Launch 5Coto 6 7Search 8Unzoom 9NextF 10New

```


□ How to Use Locate File:

1. Choose Locate File from the File menu.
The File Locate dialog box appears, and Add, Edit, Delete and Move search group commands and associated function keys appear on the Message Bar:



If you used Install to install PC Shell on your hard disk and any of the popular database, spreadsheet or word processing programs were on your system, search groups appropriate to these applications will have been added to the File Locate dialog box for you.

2. Select the Specify File Name(s) entry, an entry from the list of search groups, or a command on the Message Bar. Use the keyboard or mouse to scroll the list and select an entry, or select an entry by pressing its highlighted letter.
 - If you choose Specify File Name(s), a dialog box appears in which you enter the specifications (for example, *.DOC) for the files you want to locate:

Enter the specific file or groups of files you wish to locate

Wildcard characters are allowed in the directory name(s), the filename(s), and/or the extension(s). Multiple paths and/or filetypes can be located by placing a space between each spec.

Paths can be EXCLUDED from the list by using the - character.

Example: *.exe *.com *.bat -\dos*,* -\pc*,*

Filespecs: [*.*DOC]

SEARCH

CANCEL

Enter your file specifications in the format
[-][path]filename:

"-" excludes files. If you don't precede files with "-", Locate assumes that you want to include them. This is an optional entry.

path defines the location of the file(s) with respect to the root directory. Wildcard characters are allowed in the path entry. Wildcard characters are "?" (which substitutes one character in a path or file name) and "*" (which can represent up to eight characters in a file name or three in an extension). This is an optional entry.

filename is a filename, with wildcards allowed. The wildcard symbols "*" and "?" allow you to locate files with similar names or extensions. The "*" is a place holder for an entire name or extension and the "?" is a place holder for a specific character.

100 total characters are allowed. Letters can be upper or lower case. Separate multiple file specifications with one or more spaces.

Note - Scrolling: Use the Right and Left arrows to move the cursor one character right or left, and the Home and End keys to position the cursor at the beginning or end of the entry.

Note - Editing: To insert characters, scroll to where the characters are to be inserted, and type the additional characters. If you want to type over characters, press INSERT to go to overtype mode. To delete text, position the cursor after the character to be deleted and press DELETE.

10. Locating Files

3. Select Search to start the search, or Cancel to go back and select a different search group.

Examples of Filespecs

To locate the file AUTOEXEC.BAT, enter:

```
AUTOEXEC.BAT
```

To locate all files with the extension .DOC, enter:

```
*.DOC
```

To locate all files with the extension .DOC in the \WORD directory, enter:

```
\WORD\*.DOC
```

To locate all the files with the extension .WK1 except those in the \MISC directory, enter:

```
*.WK1 -\MISC\*.WK1
```

To locate all the files in the root, \DOS and \PCTOOLS directories, enter:

```
\*.* \DOS\*.* \PCTOOLS\*.*
```

To locate all the files with the extension .TXT (text files) in the \PCTOOLS directory and all the \PCTOOLS subdirectories, enter:

```
\PCTOOLS\*\*.TXT
```

To locate all of your Lotus 1-2-3 spreadsheet files:

```
*.WK?
```

or

- Choose the name of a search group, whose file specifications will be used to locate files. For example, in the above illustration, you can choose Lotus 123 or dBASE.

or

- Choose the Add, Edit, Delete, or Move commands on the Message Bar to add, edit, delete, or move search groups. See the section “Using Search Groups” for detailed instructions. When you finish, the File Locate dialog box is updated to reflect your changes.

After you select an entry in the File Locate dialog box, the Search For dialog box appears:



The Search For dialog box gives you the option to add character search criteria to the locate.

3. Type the text or characters that you want to search for within the located file(s); for example, “sales”. Type a maximum of 30 characters. The search is case insensitive and accepts a space as a character. For example, “sales,” and “sales<SPACE>” are treated as different search strings.

Use the scroll keys and INSERT and DELETE keys to edit this entry. Select Search to start the locate.

OR

If you don’t want to specify search characters, press ENTER to start the locate.

Locate File searches the current drive for files matching your file specifications and search text (if entered) and displays them in the Locate File window. Pressing ESC or F3 cancels the locate.

4. Press F3 or ESC, or click in the Locate File window close box to exit Locate File.

Using Search Groups

Locate File can search for files among selected groups of files. You define the groups of files you want to search, including or excluding groups of files as you see fit. The groups of files can be as simple as all the files with the same extension or as complex as files with different extensions from multiple directories. If you plan to search for groups of files on a regular basis, you can name them and save them for future use with the Add command. Thereafter, the group

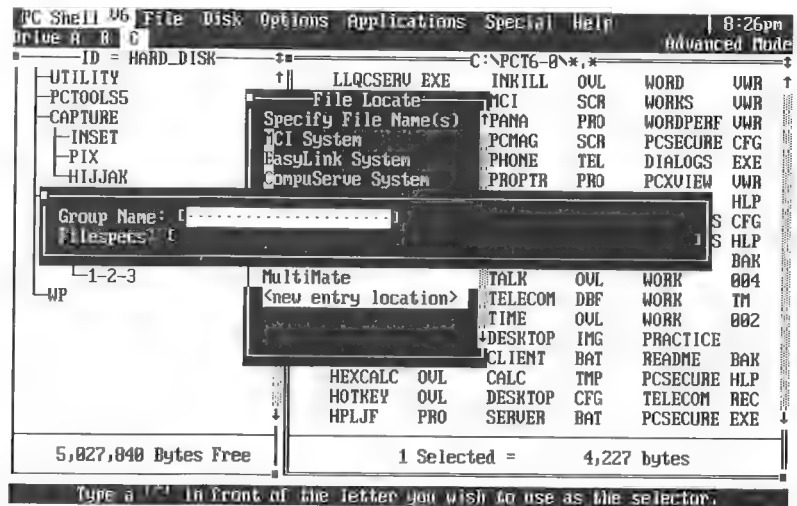
name is listed in the File Locate dialog box. You can select it or any other search group. You can also edit, delete or reorder search groups.

If you used Install to install PC Shell on your hard disk and any of the popular database, spreadsheet or word processing programs were on your system, search groups appropriate to these applications will have been added to the File Locate dialog box for you. For example, if Lotus 1-2-3 was on your system when you used Install, a search group named Lotus 123 will appear in the File Locate dialog box. Locating your 1-2-3 files is a simple matter of choosing Locate File, then selecting the Lotus 123 search group.

***Note:** If you add, edit, delete, or move a search group, and want to save the changes for future sessions, select Save Configuration from the Options menu. This saves the changes to the PC Shell configuration file. If you don't save the changes, PC Shell asks you if you want to save them when you exit PC Shell.*

To Add a Search Group:

1. Choose Locate File from the File menu.
The File Locate dialog box appears.
2. Press F4 or click on the Add command on the Message Bar.
A highlighted place holder for the new search group appears in the File Locate dialog box.
3. Use the Up and Down arrows or click the mouse to position the place holder where the new search group is to be inserted in the list, then press ENTER or click on "Enter" on the Message Bar. A dialog box with entries for Group Name and Filespecs appears.



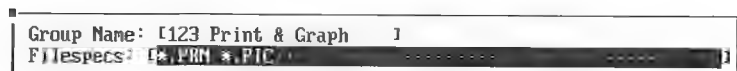
4. Enter a maximum of 20 characters to name this search group. If you press the ^ key (the SHIFT-6 key) before you type a letter, that letter is highlighted in the File Locate dialog box and can be used to start the locate of the search group. For example, if you want a search group that locates all your Lotus 1-2-3 print and graph files, enter the following for Group Name:

123 Print & Graph

5. Enter the file specifications of the groups of files you want to locate in the format [-][path]filename. 100 total characters are allowed. Letters can be upper or lower case. Separate multiple entries with one or more spaces. See the section "How to Use Locate File" for information on the Filespecs entry.

For example, to locate all the 1-2-3 print and graph files, which have the extensions .PRN and .PIC, enter the following:

*.PRN *.PIC



Once you have entered the Group Name and Filespecs, the group name appears in the File Locate dialog box.

6. Select the new group and press **ENTER** to start the locate using the file specifications of the newly-created search group.

Once the .PRN and .PIC files are in the Locate File window, you can use any of the PC Shell commands from the pull-down menus or from the Message Bar, such as Delete, Copy, Launch, etc.

7. Select Save Configuration from the Options menu to save changes made to the File Locate dialog box beyond the current session.

❑ To Edit a Search Group:

1. Choose Locate File from the File menu.
The File Locate dialog box appears.
2. Press F5 or click on the Edit command on the Message Bar.
You are prompted to select the group to edit.
3. Select the search group you want to edit. The current Group Name and Filespecs for the highlighted search group are displayed.



Group Name: 123 Print & Graph]
Filespecs: *.PRN *.PIC

4. Make the changes you want to Group Name and Filespecs and press **ENTER** from the Filespecs entry to save the changes and return to the File Locate dialog box. If you changed the search group name, the new name is now listed.

For example, if you discover that the search group 123 Print & Graph, created to locate 1-2-3 .PRN and .PIC files, is locating files that aren't 1-2-3 files because other programs use the .PRN and .PIC extensions, change the Filespecs entry from *.PRN *.PIC to \123*.PRN \123*.PIC. This restricts the locate to .PRN and .PIC files in the 1-2-3 directory.



Group Name: 123 Print & Graph]
Filespecs: \123*.PRN \123*.PIC

5. Select Save Configuration from the Options menu to save changes made to the File Locate dialog box beyond the current session.

❑ To Delete a Search Group:

1. Choose Locate File from the File menu.
The File Locate dialog box appears.
2. Press F6 or click on the Delete command on the Message Bar.
You are prompted to select the group to delete.
3. Select the search group you want to delete. A dialog box appears which asks you to confirm the deletion of the search group.
4. Select Continue to delete the Search group or Exit if you don't want to delete the group. If you select Continue, the File Locate dialog box reappears and the search group just deleted is no longer listed.
5. Select Save Configuration from the Options menu to save changes made to the File Locate dialog box beyond the current session.

❑ To Reorder the Search Groups:

You can change the order of the search groups in the File Locate dialog box.

1. Choose Locate File from the File menu.
The File Locate dialog box appears.
2. Press F7 or click on the Move command on the Message Bar.
You are prompted to select the group to move.
3. Select the search group that you want to move.
4. Use the keyboard or mouse to move the highlighted search group to its new location.
5. Press ENTER or click the mouse to accept the reordered list.
6. Select Save Configuration from the Options menu to save changes made to the File Locate dialog box beyond the current session.

11. Viewing Files

PC Shell has viewers that display files generated by most database, spreadsheet and word processing applications in approximate native format. If you select a dBASE, R:BASE, or Lotus 1-2-3 file, the file is displayed in a View Window in database or spreadsheet format respectively. PC Shell also has viewers that display files with the extension .PCX in graphics format, such as pictures created in PC Paintbrush, and viewers for files with .ARC or .ZIP extensions.

Table of Viewers

The following file types can be displayed in their native format.

Database Viewers

Paradox files
dBASE files
FoxBASE files
R:BASE files
Clipper files
dBase files
Microsoft Works files

Miscellaneous Viewers

ARC files
Binary files
PCX files
PKZIP files
PAK files
LHARC files
ZOO files

Spreadsheet Viewers

Lotus 1-2-3 files
Lotus Symphony files
Microsoft Works files
Microsoft Excel files
Borland Quattro files
Mosaic Twin files
Words and Figures files
MultiPlan files
VP Planner Plus files

Word Processor Viewers

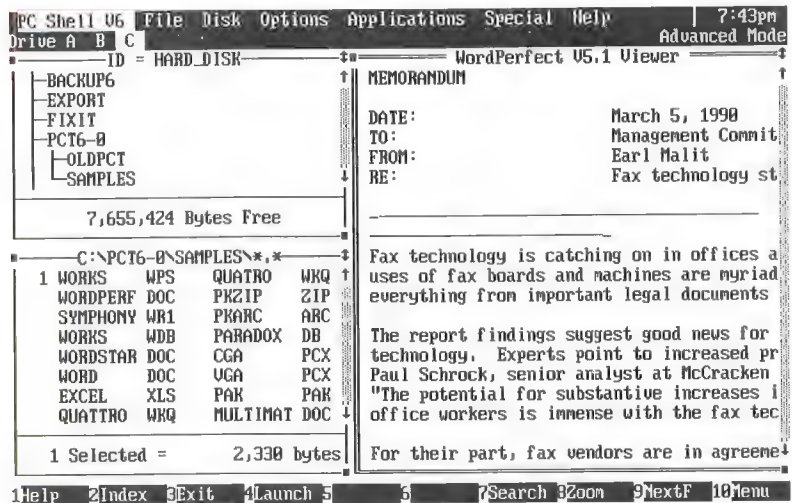
Text files
Desktop Notepads files
XyWrite files
WordStar files
WordPerfect files
Microsoft Word files
WordStar 2000 files
DisplayWrite files
MultiMate files
Microsoft Works files
Microsoft Windows Write files

While viewing one or many files, all pull-down menu commands are available. Notice also that additional functions are available from the bottom line Message Bar when the View Window is the active window. Pressing and holding down the ALT key enables you to use the PC Shell function key commands. Pressing the SHIFT key shows an alternate set of functions.

Viewing Files

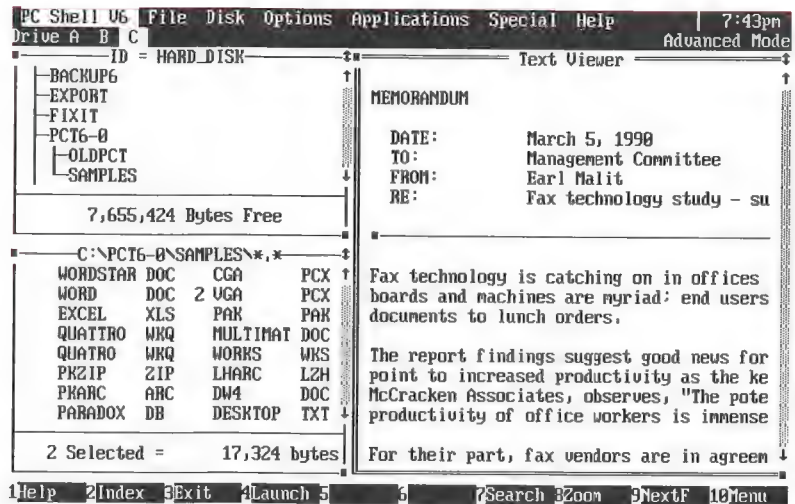
1. Select the file(s) to be viewed in the File List window. If you don't select files, the file with the highlight bar on it will be viewed.
2. Choose View Window from the Options menu.

The View Window appears with the type of viewer as the title of the window. The following example shows the WordPerfect Viewer:



Note: If you are in the Two List Display mode and open the View Window, the View Window replaces the lower set of windows. The upper set of windows stays the same unless the lower set of windows was active when you opened the View Window; in that case, the lower set replaces the upper set.

Highlight a new file in the File List window to change the viewer. The file previously displayed in the View Window is replaced with the currently highlighted file. You can take a quick look at the contents of file after file with only one keystroke or mouse click.



As always, you can activate any window by clicking into it, or if you have several windows open, by pressing TAB, which activates the windows in round-robin fashion, or SHIFT-TAB, which works in reverse order from TAB. SHIFT-TAB is especially useful when you have moved the File List and View Windows side by side and covered up the Tree Window and you want to go back and forth between just the File List and View Windows. If you use the TAB key from the View Window, the Tree Window reappears on the screen and you have to TAB again to activate the File List. With SHIFT-TAB, you go directly to the File List window from the View Window and TAB to go back.

Select the commands on the Message Bar by pressing the function key or by clicking on the command. For example, press F9 or click on "Next" to view the next selected file. All PC Shell commands on the pull-down menus are also available.

You can scroll through the active View Window easily using the vertical and horizontal scroll bars or the right mouse button function.

Using Quick File View

Using Quick File View displays the selected file in a zoomed window.

1. Select the file(s) to be viewed in the File List window. If you don't select files, the file with the highlight bar on it will be viewed.
2. Choose Quick File View from the File menu.
The first file selected in the File List appears in a zoomed View Window:

```
PC Shell V6 File Disk Options Applications Special Help | 6:51pm
WPD0C. WordPerfect Viewer
```

Michelle Bristow
3575 SW Olsen Rd, #5
Portland, OR 97225

Dear Ms. Balieu:

Thank you very much for your excellent suggestions for PC Tools Deluxe. We appreciate you taking time out of your busy schedule to let us know your thoughts and ideas on our program. It is with suggestions like yours that we can continue to build on the world's best selling utility.

You will be delighted to know that several of your ideas have been implemented. We have added a DOS Command Line, Browse and Append features to Desktop's Database, and in PCBackup, the ability to Append to the last disk and a separate Compare feature.

We appreciate your support and will continue to produce the high

```
1Help 2Index 3Exit 4Launch 5 6 7Search 8Unzoon 9NextF 10Menu
```

Select the commands on the Message Bar by pressing the function key or by clicking on the command. For example, press F9 or click on "Next" to view the next selected file. All PC Shell commands on the pull-down menus are also available.

Pressing ESC, F3 or clicking on "Exit" on the bottom line returns you to the PC Shell display you had up before choosing Quick File View.

Quick View with windows hidden:

Choosing the Quick File View command when the windows are hidden displays the following dialog box:

```
File Quick Viewer
Quick View File:
C:\NCT6-0\SAMPLES\
```

Type the path and file name of the file(s) you want to view. The first selected file appears:

SAMPLE.DBF Data Base Viewer 1 of 3				
COMPANY	LAST_NAME	FIRST_NAME	SALUT	PHONE
Big Tree Lumber Company	Forest	Bill	Mr.	555-5555
ACME Corp.	Coyote	Wiley	Mr.	555-5555
Tune Town Productions	Rabbit	Roger	MR.	555-5555

C:\PCT6-0\SAMPLES>

1Help 2Info 3Exit 4Launch 5Goto 6Edit 7Search 8Unzoom 9NextF 10

Changing the Viewer Configuration

The current View Window configuration setting is indicated to the right of the Viewer Cfg command in the Setup Configuration pop-up menu. You can change the orientation of the View Window:

- Choose the Viewer Cfg setting on the Setup Configuration pop-up menu.

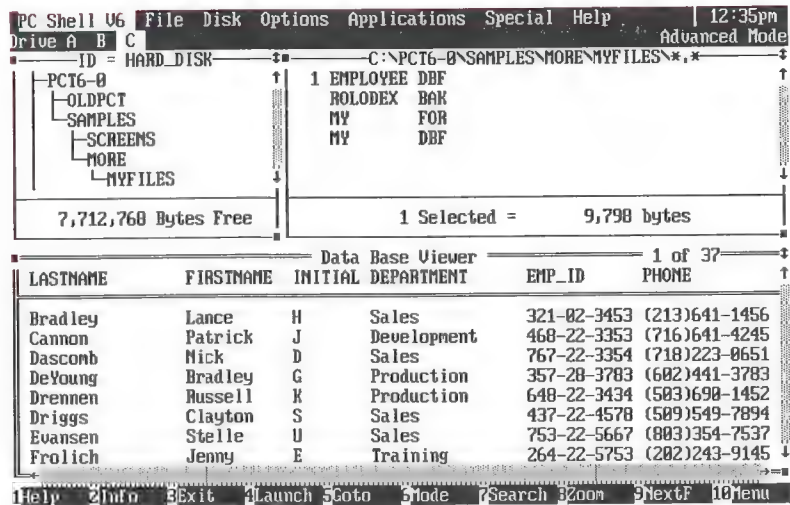
This will toggle between the vertical viewer:

PC Shell V6 File Disk Options Applications Special Help 12:33pm				
Drive A B C ID = HARD_DISK				
PCT6-0				
OLDPCT				
SAMPLES				
SCREENS				
MORE				
MYFILES				
7,712,768 Bytes Free				
C:\PCT6-0\SAMPLES\MORE\MYFILES*				
1 EMPLOYEE DBF				
ROLODEX BAK				
MY FOR				
MY DBF				
1 Selected = 9,798 bytes				
Data Base Viewer 1 of 37				
LASTNAME	FIRSTNAME	INITIAL	DEPART	
Bradley	Lance	H	Sales	
Cannon	Patrick	J	Develo	
Dascomb	Nick	D	Sales	
DeYoung	Bradley	G	Produc	
Drennen	Russell	K	Produc	
Driggs	Clayton	S	Sales	
Evansen	Stelle	U	Sales	
Frolich	Jenny	E	Traini	
Gaston	Ugless	Q	Execut	
Gray	Reed	K	Sales	
Hauman	Joe	T	Develo	
Heath	Mary	R	Educat	
Johnson	Renee	L	Sales	
Kozak	Alvin	S	Sales	
Lindahl	Pete	H	Execut	
Martell	James	T	Educat	
Pennington	David	A	Produc	
Larson	Jill	O	SALES	

1Help 2Qview 3Exit 4Unsel 5Copy 6Disply 7Locate 8Zoom 9Select 10Menu

and the horizontal viewer:

11. Viewing Files

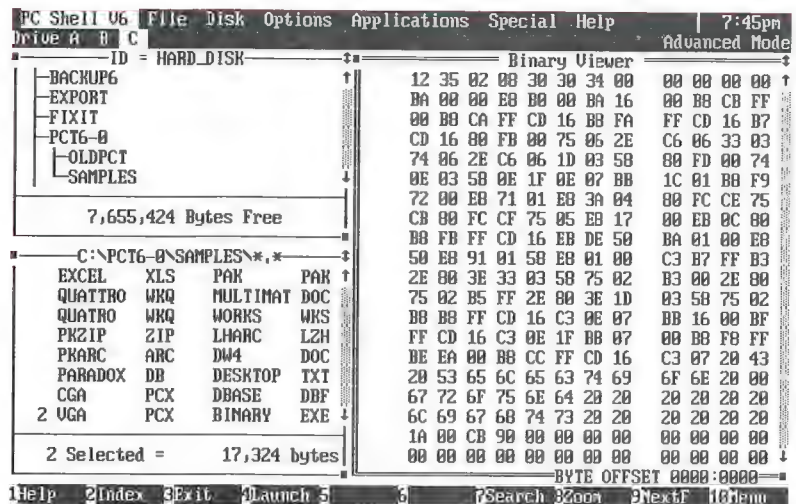


To save the viewer configuration for subsequent PC Shell sessions, use the Save Configuration File command from the Options menu.

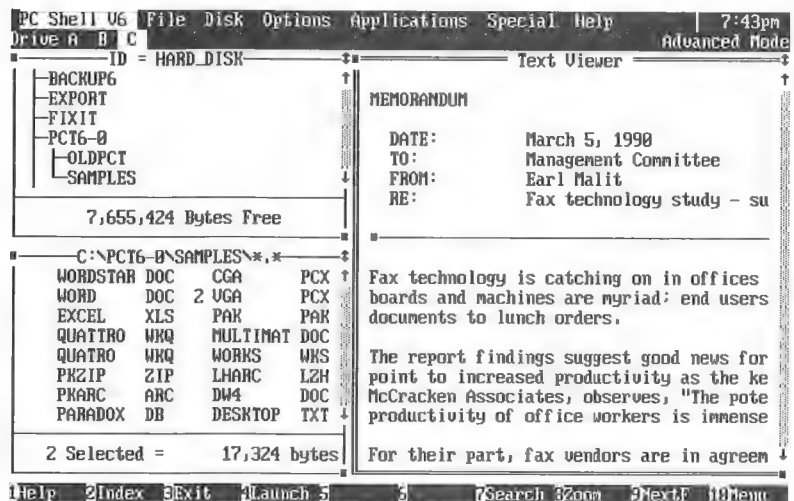
The View Window configuration also affects the Locate File command. For example, if you use the Locate File command to locate all of your .DBF files and want to view the located files, you can view them using either of the View Window configurations, as well as see the Locate Window on the screen.

Changing the Default Viewer

If the selected file is not associated with a specific type of viewer, it is displayed in the default viewer. If the file has the extension .COM, .EXE, .OBJ, .BIN or .SYS (except CONFIG.SYS, which is displayed in the Text Viewer), the file is displayed in the Binary viewer:



and in the Text Viewer if the file has the extension .TXT or .BAT:



The current default viewer appears to the right of the Default Viewer command on the Setup configuration pop-up menu.

- Choose Default Viewer from the Setup Configuration pop-up menu on the Options menu.

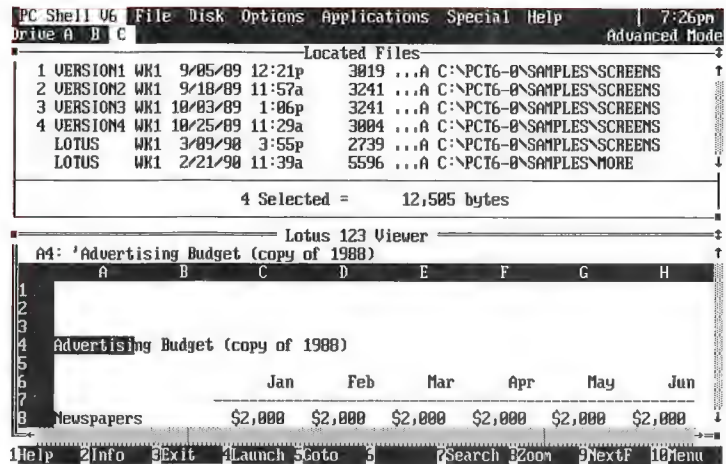
Viewing Located Files

You may want to use Locate File to help you find files in a number of directories. Then when you turn on the View Window from the Locate File window, the Locate File and View Windows appear on the screen at the same time. This is a fast way of locating files on large hard disks with many directories. You can then view the contents of file after file simply by selecting each file listed in the Locate File window.

Suppose you used Locate File to locate all of your .WK1 files. The following .WK1 files might be displayed in the Locate File window:

PC Shell V6										File Disk Options Applications Special Help										7:25pm																			
Drive A B C										Advanced Mode																													
Located Files																																							
SKIPPIES WK1										6/08/89 4:54p										8236 C:\COPYII																			
LOTUS WK1										3/09/90 3:55p										2739 ...A C:\PCT6-0\SAMPLES																			
UP-PLAN WK1										3/09/90 3:50p										7159 ...A C:\PCT6-0\SAMPLES																			
SKIP2 WK1										6/05/89 7:10p										2722 ...A C:\PCT6-0\SAMPLES\SCREENS																			
SKIPPIES WK1										6/06/89 10:42a										2531 ...A C:\PCT6-0\SAMPLES\SCREENS																			
VERSION1 WK1										9/05/89 12:21p										3019 ...A C:\PCT6-0\SAMPLES\SCREENS																			
VERSION2 WK1										9/18/89 11:57a										3241 ...A C:\PCT6-0\SAMPLES\SCREENS																			
VERSION3 WK1										10/03/89 1:06p										3241 ...A C:\PCT6-0\SAMPLES\SCREENS																			
VERSION4 WK1										10/25/89 11:29a										3004 ...A C:\PCT6-0\SAMPLES\SCREENS																			
LOTUS WK1										3/09/90 3:55p										2739 ...A C:\PCT6-0\SAMPLES\SCREENS																			
LOTUS WK1										2/21/90 11:39a										5596 ...A C:\PCT6-0\SAMPLES\MORE																			
11 Listed = 44,227 bytes																																							
1:Help 2:View 3:Exit 4:Unsel 5:Copy 6:Display 7:Locate 8:Zoom 9:Select 10:Menu																																							

If you select the file VERSION1.WK1 and open the View Window (choose View Window from the Options menu), the Locate File and View Windows appear as follows:



The View Window has the same capabilities as the Locate window discussed previously: both windows can be resized and moved. Notice, however, that the commands unique to the viewer are available on the Message Bar when the viewer is active (Search, Launch, Zoom, etc.). Pressing the ALT key toggles the bottom line functions between view functions and PC Shell functions.

Viewer Function Keys/Commands

Once the View Window is activated, special view function keys are available on the Message Bar, depending upon which viewer you are using. You can execute these commands by pressing the highlighted function key or by clicking on the command with the mouse. Also, pressing the SHIFT key in a viewer shows an alternate set of functions. The following section explains each command in detail.

These commands are common to all of the viewers when they are active:

1Help 2Info 3Exit 4Launch 5Goto 6 7Search 8Zoom 9NextF 10Menu

[F1] Help:

Help provides context-sensitive help messages.

[F3] Exit:

Exit closes the View Window.

[F4] Launch:

The Launch command automatically runs the application associated with the file being viewed, loads the viewed file into the application and displays it for you as if you had exited PC Shell, executed the application, and loaded the file--only faster and easier. For example, if the file BUDGET.WK1 is in the viewer and .WK1 files are associated with the Lotus 1-2-3 application, Launch runs 1-2-3 and loads BUDGET.WK1 into 1-2-3.

If the viewed file is a WordPerfect file, choosing Launch runs WordPerfect, loads the viewed file into WordPerfect, and displays it ready for editing.

After you exit WordPerfect, you are returned to PC Shell.

***Note:** If the viewed file is not associated with an application on the Applications pull-down menu, the Launch command will not work. If you used PC Setup, any of the popular database, spreadsheet or word processing programs on your system will have been installed on the Applications menu for you. When you add new applications to your system, rerun PC Setup to have them installed automatically on the Applications menu.*

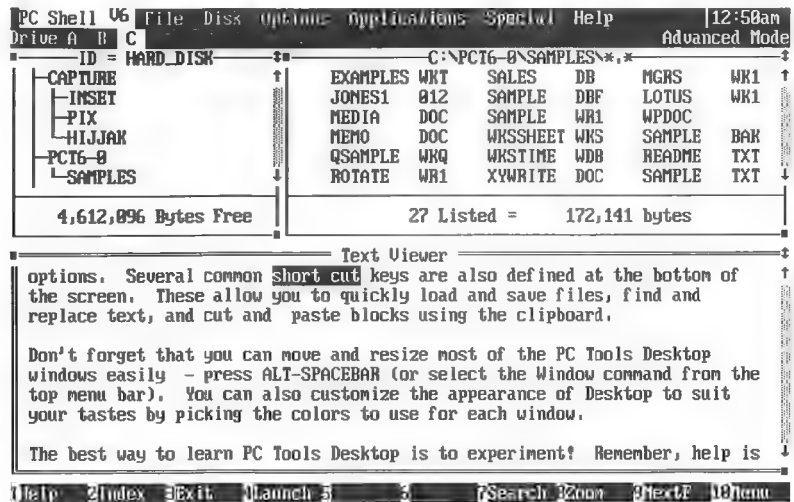
[F7] Search:

The Search command searches the file being viewed for specific characters. If the search text is found, pressing SHIFT-F7 looks for the next occurrence of the search text. In general, when using Search inside a viewer, you can search for dates, file size, etc. as well as text strings.

1. Press F7 or click on Search on the Message Bar. The following Search For dialog box appears unless you are in the Binary viewer. In the Binary viewer, a dialog box for entering HEX characters appears; press F9 to enter text rather than HEX characters.
2. Type a maximum of 32 search characters.

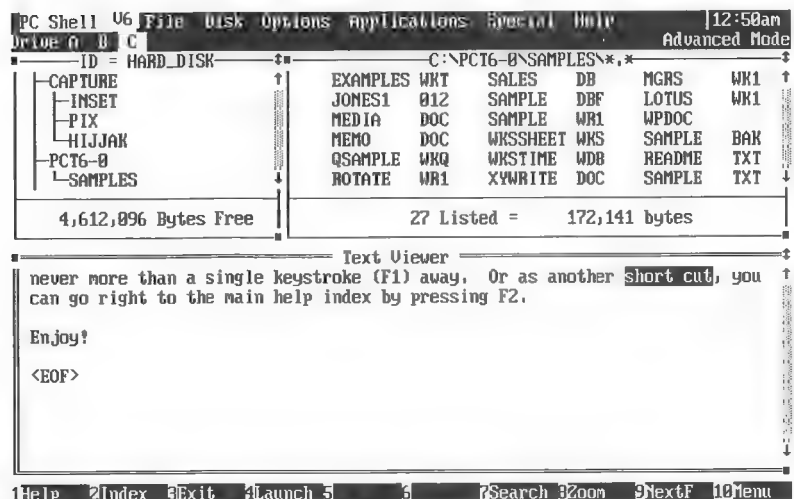
Search For: short cut.....

3. Press ENTER to start the search.



In the example, the first occurrence of the search text is highlighted. The color of the highlighted text is determined by the setting of "Window Selected Data" in the Color Change dialog box (see the section "Changing Screen Colors"). The program beeps if the search text is not found.

4. Press SHIFT-F7 to search for the next occurrence of the search text in the file.

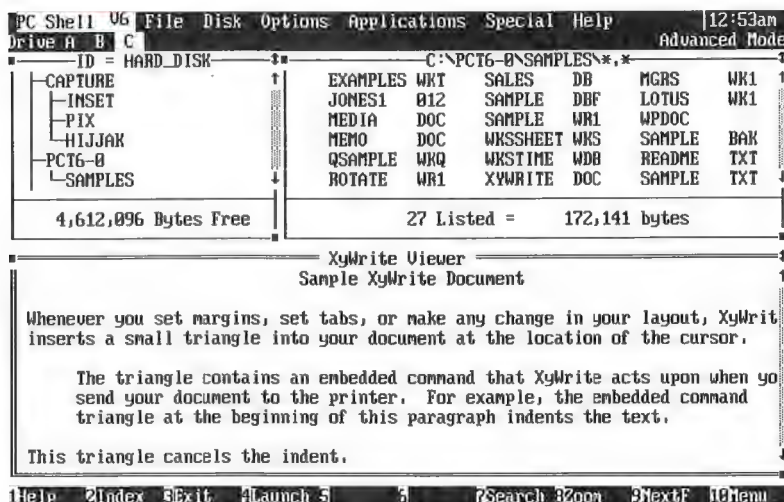


The next occurrence of the search text is highlighted.

[F8] Zoom/Unzoom:

Zoom expands the viewer to full screen size and displays the file as it would appear from its associated application. Zoom changes to Unzoom on a currently zoomed window. The navigation keystrokes and the commands on the Message Bar work as in regular View mode.

1. Press F8 or click on Zoom on the Message Bar.
If the selected file appeared in the View Window prior to using the Zoom command as follows:



choosing Zoom expands it to full-screen size and displays it in a format closer to the format of the actual application, in this example XyWrite.


```

PC Shell V6 File Disk Options Applications Special Help 12:53am
XYWRITE.DOC XyWrite Viewer
.....1.....2.....3.....4.....5.....6.....7.....
Sample XyWrite Document

```

Whenever you set margins, set tabs, or make any change in your layout, XyWrite inserts a small triangle into your document at the location of the cursor.

The triangle contains an embedded command that XyWrite acts upon when you send your document to the printer. For example, the embedded command triangle at the beginning of this paragraph indents the text.

This triangle cancels the indent.

This triangle resets the left margin.

Take a look inside. Move the cursor onto each triangle and read its code on the message line. To see all the codes, switch to Expanded display by pressing F6 to display the A La Carte Menu, and select Screen Expand **^*xxx^**. OR you can switch to Expanded display by pressing Ctrl F9. Press it again when you're done. Try it now!

Press PgDn to read the rest of this.

```

1Help 2Index 3Exit 4Launch 5 6 7Search 8Unzoom 9NextF 10Menu

```

The scroll bars, which were added for ease of navigation in regular View mode, do not appear in Zoomed databases, spreadsheets and word processing files since they are not part of their native formats. Note, in this example, that the XyWrite ruler does not appear in regular View mode, but is at the top of the window in Zoom mode just as it would be if the file were displayed from XyWrite.

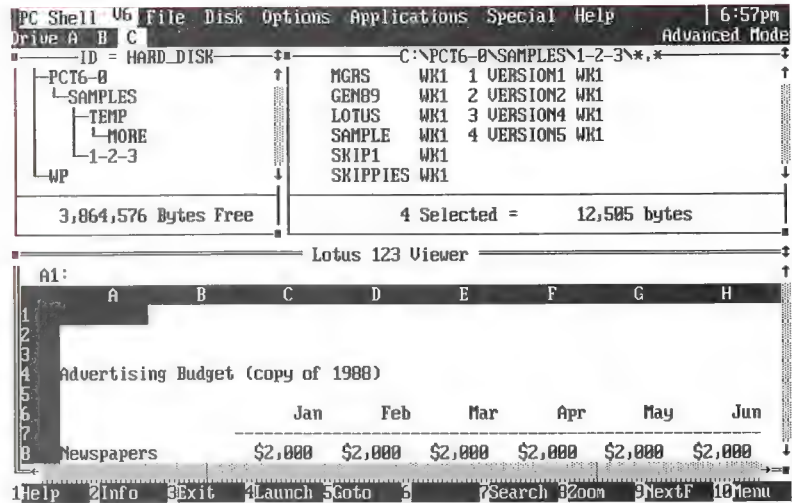
2. Press F8 on the Message Bar to return to regular View mode.

[F9] Next:

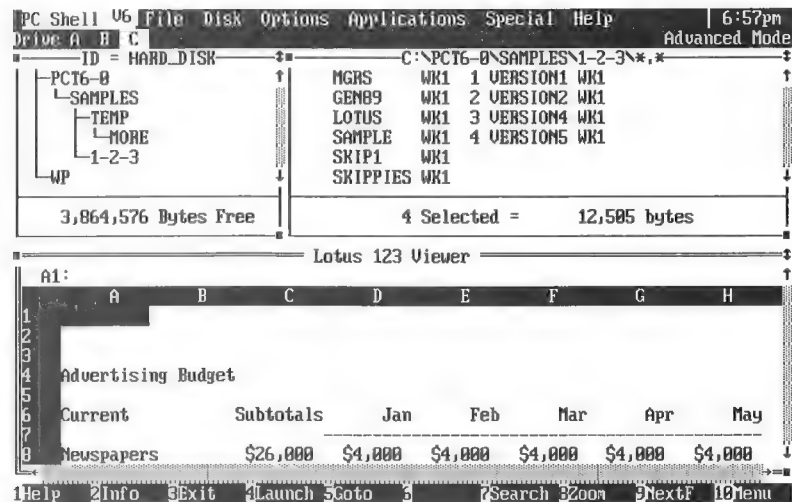
Next displays the next file selected in the File List window in the viewer. If there are no more selected files, the next file in the File List Window will be viewed. If you are viewing the last file in the File List Window when you select Next File, the viewer will continue to display the last file.

For example, if the files are selected as follows and the file VERSION1.WK1 is already in the viewer:

11. Viewing Files



choosing Next displays VERSION2.WK1.



And so on. When the file VERSION4.WK1 is in the viewer, choosing F9 continues to display VERSION4.WK1.

[F10] Menu:

Menu activates the Horizontal Menu Bar.

Spreadsheet Viewer Commands

When you view a spreadsheet file, additional commands appear on the Message Bar specifically for spreadsheet viewing:

1 Help 2 Info 3 Exit 4 Launch 5 Goto 6 7 Search 8 Zoom 9 NextF 10 Menu

[F2] Info:

Info displays information about the viewed spreadsheet file, such as the name of the file, when it was last updated, and how many rows and columns the worksheet contains.

1. Press F2 or click on Info on the Message Bar.

File Information			
File name	SKIPPIES.WK1		
Last Updated	06/06/89		
Rows	16	Columns	10

2. Press F3, ESC, or click on the close box to close the Spreadsheet Information box.

[F5] Goto:

If you are viewing a spreadsheet file, Goto scrolls the display directly to a specified cell identification number.

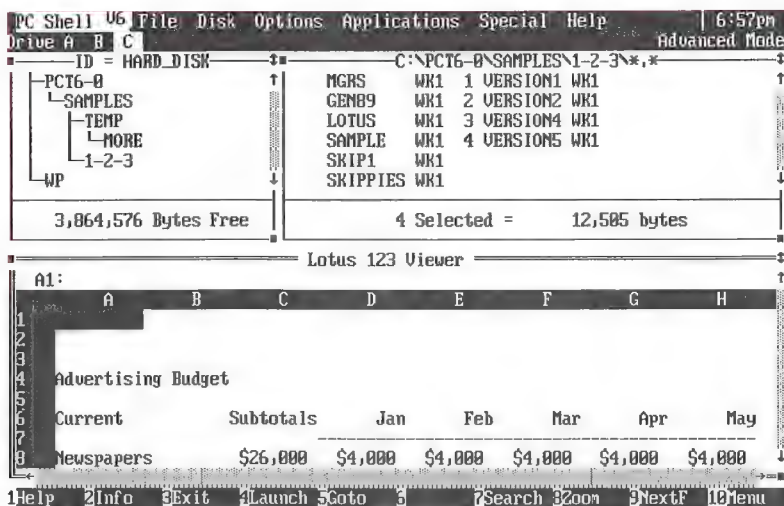
1. Press F5 or click on Goto on the Message Bar.
A dialog box appears:

Cell to go to

2. Type the cell identification number and press ENTER .

Cell to go to A1

The cell specified is displayed in the viewer.



Database Viewer Commands

When you view a database file, additional commands appear on the Message Bar specifically for database viewing:

1Help 2Info 3Exit 4Launch 5Goto 6Mode 7Search 8Zoom 9NextF 10Menu

[F2] Info:

Info displays information about the viewed database file, such as when it was last updated, header and record size, and the field names, types and sizes.

1. Press F2 or click on Info on the Message Bar.

Data Base Statistics		
Name of File: EMPLOY.DBF		
Last Update on: 02-06-90		
Size of Header: 769 bytes		
Size of Record: 244 bytes		
Number of fields: 23		
Number of records: 37		
Field Name	Type	Size
LASTNAME	C	15
FIRSTNAME	C	10
INITIAL	C	1
DEPARTMENT	C	15
EMP_ID	C	11
PHONE	C	13
SPECIALTY	C	11
COMMENTS	C	40

2. Press the Up, Down, PgUp, PgDn, Home or End keys to scroll through the field names, or click the mouse in the scroll bar.
3. Press F3, ESC, or click on the close box to close the Database Statistics box.

[F5] Goto:

If you are viewing a database file, Goto asks for a record number then scrolls the display directly to the specified record. If you are viewing a spreadsheet file, Goto scrolls the display directly to a specified cell number.

1. Press F5 or click on Goto on the Message Bar. A dialog box appears:

Go to record # :

2. Type the record number and press ENTER .

Go to record # : 12

The cell or record specified is displayed in the viewer.

```

PC Shell V6 File Disk Options Applications Special Help 10:19pm
Drive A B C Advanced Mode
ID = HARD_DISK C:\PCT6-0\SAMPLES\TEMP\MORE\*
PIX 1 EMPLOYEE DBF
HIJJAK LOTUS WK1
PCT6-0
SAMPLES
TEMP
MORE
4,278,272 Bytes Free 1 Selected = 9,798 bytes

Data Base Viewer 1 of 37
LASTNAME FIRSTNAME INITIAL DEPARTMENT EMP_ID PHONE
Bradley Lance H Sales 321-02-3453 (213)641-1456
Cannon Patrick J Development 468-22-3353 (716)641-4245
Dascomb Nick D Sales 767-22-3354 (718)223-0651
DeYoung Bradley G Production 357-28-3783 (682)441-3783
Drennen Russell K Production 648-22-3434 (583)698-1452
Driggs Clayton S Sales 437-22-4578 (589)549-7894
Evansen Stelle U Sales 753-22-5667 (803)354-7537
Frolich Jenny E Training 264-22-5753 (282)243-9145

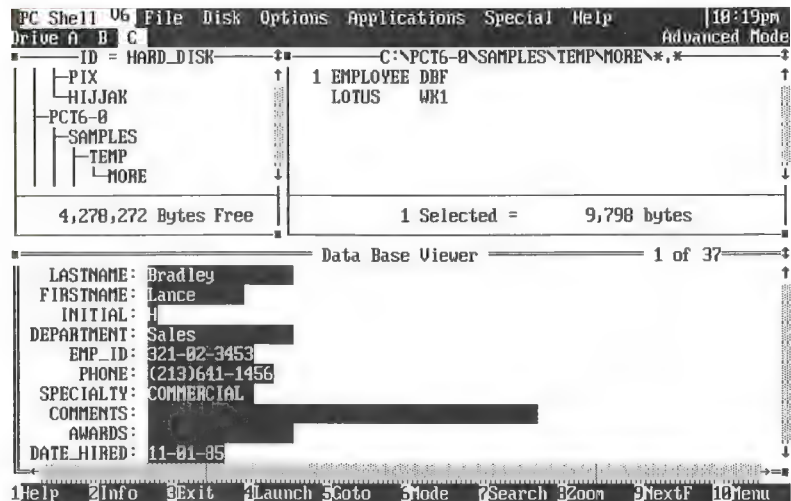
1Help 2Info 3Exit 4Launch 5Goto 6Mode 7Search 8Zoom 9NextF 10Menu

```

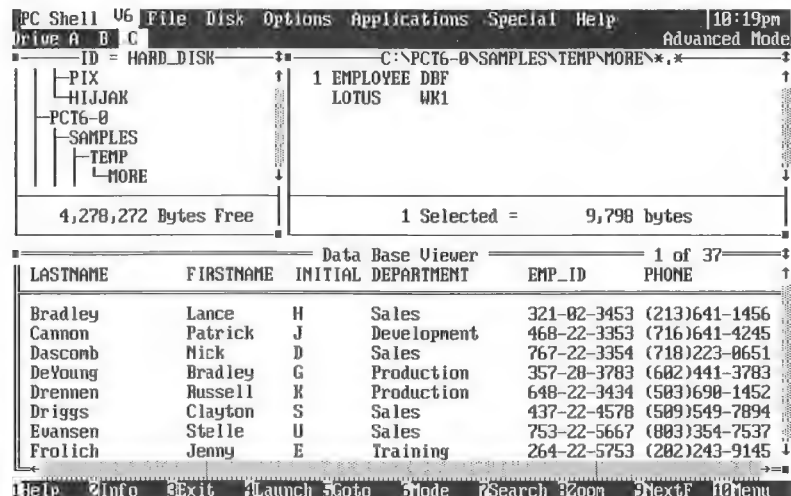
[F6] Mode:

Mode alternates the display between multiple records with the field names positioned horizontally (default Browse Mode) and one record at a time with the field names positioned vertically (Edit Mode).

1. Press F6 or click on Mode on the Message Bar. This changes to Browse mode:



If the viewer previously displayed one record, choosing Mode displays multiple records:



2. Press F6 or click on Mode on the Message Bar to redisplay the database in the previous format.

R:BASE Commands

These additional commands are available when viewing R:BASE files:

1 Help 2 Tables 3 Exit 4 Launch 5 Goto 6 Mode 7 Search 8 Zoom 9 NextF 10 Menu

Pressing the shift key displays an alternate set of functions.

[F2] Tables:

The Tables command displays a dialog box showing you the tables in the R:BASE file and how many rows and columns are in each table.

Rbase Tables		
Table name	Rows	Columns
COMPCOLS	6	6
custlist	9	9
salesrep	5	10
product	8	4
prodloc	32	5
compnent	12	2
compused	22	2
transx	19	8
transd	41	6
bonusrt	7	3

The arrow (♦) shows the currently displayed table. Pressing F2 again on a highlighted row will show what type of column, the length of the column, and the computed key field you can sort on.

Name	Type	Length	Computed	Key
model	Text	6		Ye
prodname	Text	35		
proddesc	Text	31		

By selecting the Include system tables option you can also view R:BASE system tables.

[SHIFT-F2] Attributes

Pressing SHIFT-F2 shows you what rows and columns are in the currently displayed table.

[SHIFT-F4] Info

Info displays information about the viewed R:BASE file, such as its name, how many tables are in the database, when it was last updated, time and date format used, file sizes, etc.

1. Press SHIFT-F2 or press the SHIFT key and click on Info on the Message Bar.

A dialog box appears showing information about your RBASE file.

2. Press F3, ESC, or click on the close box to close the R:BASE Information box.

[F5] Goto:

Goto asks for a row (record) number then scrolls the display directly to the specified record.

1. Press F5 or click on Goto on the Message Bar.
A dialog box appears:



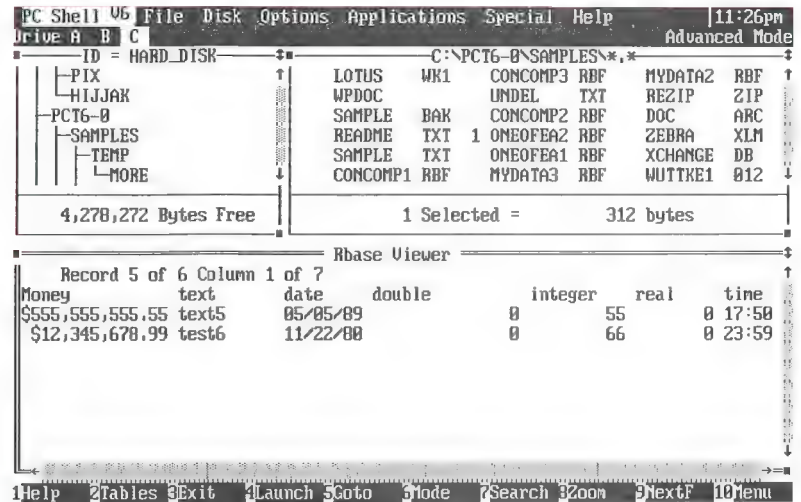
Row to go to

2. Type the record number and press TAB or ENTER .



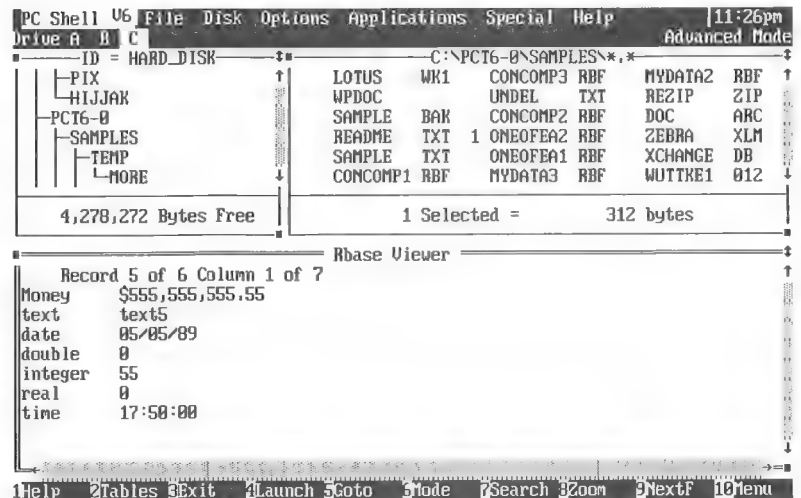
Row to go to 5

The record specified is displayed in the viewer.

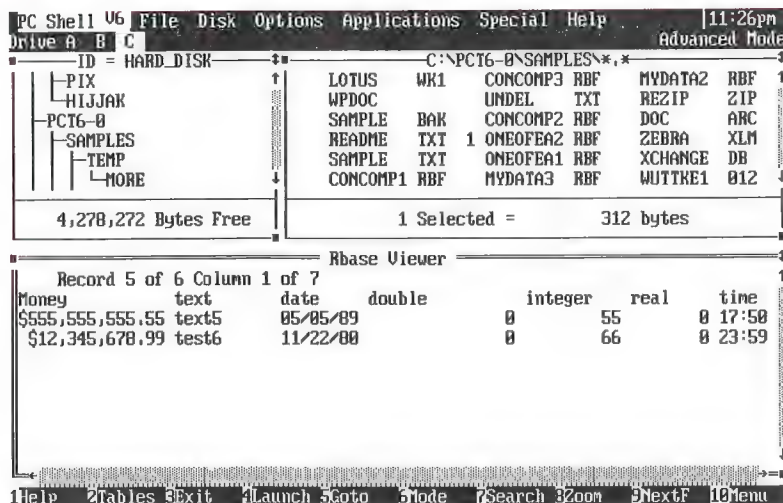
**[F6] Mode:**

Mode alternates the display between multiple records with the field names positioned horizontally and one record at a time with the field names positioned vertically.

1. Press F6 or click on Mode on the Message Bar. This changes to Browse mode:



If the viewer previously displayed one record, choosing Mode displays multiple records:



- Press F6 or click on Mode on the Message Bar to redisplay the database in the previous format.

Arc Commands

These additional commands are available when viewing compressed .ARC, .PAK, .LZH, .ZOO, or .ZIP files:



[F2] Info:

The Info command displays a dialog box showing information about the compressed file: its name, last modified date, number of files in the archive, and the degree of compression.

File Information	
File	REZIP .ZIP
Updated	10/01/89
Files	2
Original	24642
Compressed	14382
Ratio	41%

Note: You can use the Search command from the viewer to search on any of these fields.

Viewer Keystrokes



The following keystrokes are available when using the viewers:

Binary, Text, and Word Processing Viewers

To	Press
Move up one line	Up arrow
Move down one line	Down arrow
Move up one window	PgUp
Move down one window	PgDn
Go to beginning of file	Home
Go to end of file	End

Spreadsheet Viewers

To	Press
Move up one cell	Up arrow
Move down one cell	Down arrow
Move right one column/cell	Right arrow
Move left one column/cell	Left arrow
Move right one window	Ctrl-right arrow
Move left one window	Ctrl-left arrow
Move up one window	PgUp
Move down one window	PgDn
Go to beginning of spreadsheet	Home
Go to end of spreadsheet	End

Database Viewers

To (Browse Mode)	To (Edit Mode)	Press
Move right one field	Move to next record	Right arrow
Move left one field	Move to prior record	Left arrow
Move up one record	Move up one field	Up arrow
Move down one record	Move down one field	Down arrow
Move up one screen	Move up one screen	PgUp
Move down one screen	Move down one screen	PgDn
Go to beginning of database	Go to beginning of record	Home
Go to end of database	Go to end of record	End
Alternate first/last record	Alternate first/last record	/

R:BASE Viewers

To (Browse Mode)	To (Edit Mode)	Press
Move right one field	Move to next record	Right arrow
Move left one field	Move to prior record	Left arrow
Move up one record	Move up one field	Up arrow
Move down one record	Move down one field	Down arrow
Move up one screen	Move up one screen	PgUp
Move down one screen	Move down one screen	PgDn
Go to the next table	Go to the next table	Ctrl-PgUp
Go to the previous table	Go to the previous table	Ctrl-PgDn
Go to the first record of a table	Go to the first field of a table	Home
Go to the last record in a table	Go to the last field in a table	End
Go to the first table	Go to the first table	Ctrl-Home
Go to the last table	Go to the last table	Ctrl-End



You can also navigate with the mouse using either of two methods:

- To scroll vertically, press the right mouse button and drag the mouse into the top or bottom window border. To scroll horizontally, press the right mouse button and drag the mouse into the right or left window border.

or

- To scroll vertically, click on the vertical scroll bar or drag the vertical scroll box. To scroll horizontally, click on the horizontal scroll bar or drag the horizontal scroll box.

Running the Application Associated with a Viewer

The Launch command automatically runs the application associated with the file being viewed, loads the viewed file into the application and displays it for you as if you had exited PC Shell, executed the application, and loaded the file--only faster and easier. For example, if the file BUDGET.WK1 is in the viewer and .WK1 files are associated with the Lotus 1-2-3 application, Launch runs 1-2-3 and loads BUDGET.WK1 into 1-2-3.

❑ To launch from a viewer:

1. Make sure the View Window is the active window by tabbing or shift-tabbing to it.
2. Press F4 or click on Launch from the Message Bar.

If the viewed file is a WordPerfect file, choosing Launch runs WordPerfect, loads the viewed file into WordPerfect, and displays it ready for editing.

After you exit WordPerfect, you are returned to PC Shell.

Note: If the viewed file is not associated with an application on the Applications pull-down menu, the Launch command will not work. If you used PC Setup, any of the popular database, spreadsheet or word processing programs on your system will have been installed on the Applications menu for you. When you add new applications to your system, rerun PC Setup to have them installed automatically on the Applications menu.

12. Editing Files

Using the Hex Editor

The hex editor is used to edit binary files, such as those with .OBJ, .CFG, and .EXE extensions; however, a good technical understanding of hexadecimal values, sector bytes, and ASCII values is helpful when using the hex editor. You can also use the hex editor if a file doesn't verify correctly, and you want to change the data in the damaged sector.

1. Select the file(s) you want to edit.
2. Choose Hex Edit File from the File pull-down menu. The hex editor appears.

The following keys are available for hex editing:

HOME: displays the beginning of the file.

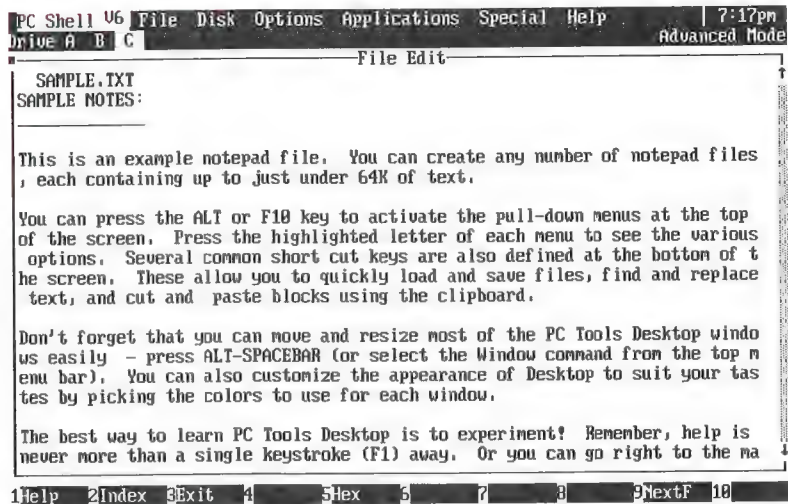
END: displays the end of the file.

PGUP: moves the display several lines backward in the file.

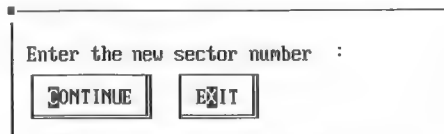
PGDN: moves the display several lines forward in the file.

3. Select any of the following commands from the bottom line:

[F5] ASCII/HEX: toggles the display between hex and ASCII format. This is useful if the file is a text file.



[F6] Sector: allows you to change to a different relative sector in this file, as shown below:



Enter a new sector number. Select Continue to change the sector or Exit if you don't want to change sectors.

[F7] Edit: displays the Sector Edit window.

[F9] Next: displays the next selected file.

You can use the scroll bar on the right side of the screen to scroll through the file with the mouse, or the right mouse button can also be used to scroll through the file. Hold down the right mouse button and drag the mouse to the top or bottom window border to scroll up or down.

Press ESC, F3, or click on the close Box to exit to the main PC Shell screen without making any changes.

❑ To edit a sector:

The numbers in the left column are the “offset” or “displacement” numbers of a sector in the file. Each of the 512 bytes of a sector are numbered from 0 to 511 (0000 to 01FF in hexadecimal). The first line shows the first 16 bytes, 0 through 15. The next line shows the next 16 bytes, 16 through 31, etc. The displacement number in the left column indicates how many bytes into the sector each line is (0000, 0016, 0032, etc.). The numbers in parentheses are the same offset numbers in hexadecimal.

The middle column displays 16 bytes of the sector in each line. Each byte is displayed as two-digit hexadecimal numbers. The same 16 bytes are displayed in ASCII values in the right column. Some or all of the ASCII values may appear unreadable. This is because those bytes may be program or data values and were not intended to be displayed as text. The file name, the relative sector, the cluster and the absolute disk sector are also shown on the first line of the window.

1. Select Edit. The Sector Edit window appears.

```

PC Shell V6 File Disk Options Applications Special Help | 9:20pm
Drive A B C Advanced Mode
Sector Edit
COMPRESS.EXE Relative sector 0000000, Clust 06007, Disk Abs Sec 0027655
0000(0000) 4D 5A 05 01 0A 00 00 00 20 00 00 02 FF FF 14 13 M2  S  80  90!!
0016(0010) 00 00 00 00 12 00 0A 10 1E 00 00 00 01 00 00 00 S  z  ||P  A  @
0032(0020) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0048(0030) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0064(0040) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0080(0050) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0096(0060) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0112(0070) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0128(0080) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0144(0090) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0160(00A0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0176(00B0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0192(00C0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0208(00D0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0224(00E0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0240(00F0) 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Help 2Index 3Exit 4 5Save 6 7 8Asc/Hex 9 10

```

2. Use the Up, Down, Left and Right arrow keys, or scroll if you have a mouse, to move the cursor.
3. Position the cursor over the first byte you want to change. You can edit either the HEX or ASCII bytes by moving the cursor into the HEX or ASCII areas and typing new values.

***Note:** If you prefer, you may make changes to the ASCII column instead of the HEX column by pressing the F8 key or clicking on Asc/Hx. The corresponding values on the HEX column will also change.*

4. Type in the new Hexadecimal or ASCII values. They replace the original bytes at the cursor position and appear in color or highlighted.
5. Select Save or press F5 to write the change(s) to the disk or ESC if you don't want to make the change(s). Selecting either Save or Esc will return you to the File View Window.

☐ **To repair a bad sector:**

Edit can often be used to fix a bad sector. To proceed with a repair, do the following:

1. From the File Edit Window select Edit or press F7.
2. Select Save or press F5 to rewrite the same sector information, without the error, back to the disk.

This procedure makes the sector readable. Unfortunately, some of the information contained in the newly rewritten sector may still be invalid. Once the data is corrupted, complete data recovery is unlikely, but this will recover as much of the data as is possible.

Using the Text Editor

The file editor (or text editor) in PC Shell allows you to create and edit documents, even within other running programs. Normally, we recommend that you use Notepads in Desktop as your file editor since it is a much more robust editor, but for editing files, the PC Shell file editor is quick and easy.

Unlike many file editors, the PC Shell's editor will only keep a limited section of the file you are editing in memory at a time -- the rest is stored in a temporary "spillfile" on the disk. This allows you to edit large documents even in resident mode without previously allocating extra memory to PC Shell.

☐ **To start the Text Editor:**

1. Select the file you want to edit.
2. Choose Edit File from the File pull-down menu.

or

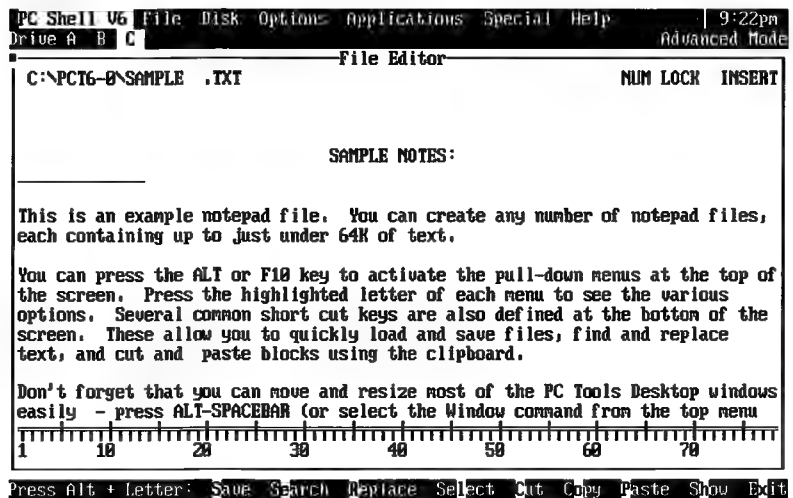
- If you want to create a new file, just choose Edit File from the File menu—it doesn't matter where the highlighted bar is.

PC Shell displays a dialog box asking you to confirm your decision to edit this file, create a new file, or Cancel.



3. If you want to edit the file you selected earlier, choose Edit. To create a new file, choose Create (you will be asked to supply the file name when you exit the file editor).

The Editor's screen appears with the available commands documented on the bottom line.





□ Use the following keys to edit:

To	Press
Insert a character at the cursor	A character
Insert a space at the cursor	Spacebar
Insert a tab at the cursor	Tab
Insert a paragraph at cursor	Enter
Delete a character under the cursor	Delete
Erase a character to the left of the cursor	Backspace
Move cursor up one line	Up arrow key
Move cursor down one line	Down arrow key
Move cursor left one character	Left arrow key
Move cursor right one character	Right arrow key
Move to the beginning of the line	Home
Move to the end of the line	End
Move to the beginning of the file	Ctrl - Home
Move to the end of the file	Ctrl - End
Move to the beginning of a window	Home twice
Move to the end of a window	End twice
Scroll text up one window	PgUp
Scroll text down one window	PgDn

Selecting Commands

The available editing commands can be found on the bottom line. Press the ALT key along with the highlighted letter of the command you want to use or click on the command with the mouse. For example, pressing ALT-S or clicking on the Save command on the Message Bar saves the file.

Adding and Editing Text

To add text, just type – the file editor automatically wraps words around on the screen for you. The only time you need to press the ENTER key is to end a paragraph. If you want to edit existing text, use the editing keys described above.

The file editor normally comes up in Insert mode. This means any new text typed is inserted into the document at the cursor position. If you are editing and want the new text to overwrite existing text, press the INSERT key first. The INS key toggles the file editor between Insert

and Overtyping modes. When the INS indicator is shown on the upper right part of the screen, you are in Insert mode.

The TAB key works just like the Tab key on a typewriter: it will move the cursor to the next tab position on the page. Tabs are pre-set in the PC Shell file editor to every eighth position across the screen.

Press the ESC key, choose the Exit command, or click on the Close box to exit the file editor. If you have made any changes, a dialog box appears asking you to confirm that you want to exit without saving. This is to prevent you from accidentally pressing the ESC key and losing the document. If you have created a new document, a dialog box will appear asking you to specify the new file name.

Cutting and Pasting Text

Selecting a Block of Text

The file editor has four commands that help you work with blocks of text. They are Select, Cut, Copy, and Paste. Here's how they work:

In Select mode, when you move through your document with the cursor keys, the text is highlighted. The highlight always starts at the cursor position.

1. Choose the Select command to put the file editor in Select mode.

For example, to select a paragraph, move to the beginning or end of the paragraph and then choose Select.

2. Press the Up, Down, Right or Left arrow keys. Each time you press the Up/Down arrow keys, another line is highlighted (selected). Each time you press the Left/Right arrow keys, another character is selected. If you press the Page Up/Down keys, a page of text is selected.

***Note:** If you want to undo selected text, choose Select again and you will exit Select mode.*

Cutting Text

When you have selected all the text you want to delete or move somewhere else, use the Cut command.

- Choose Cut to delete all the text you have selected. This puts the text into the invisible Paste buffer so you can insert (paste) it somewhere else in your document.

Copying Text

If you want to leave the selected text where it is, but you want to make a copy of it to put somewhere else in your document, use the Copy command.

- Choose Copy. Copy works just like Cut except the selected text is not deleted: it is only copied into the Paste buffer.

Pasting Text

The Paste buffer contains the text you have selected, then cut or copied. To paste the contents of the Paste buffer into your document, do the following:

1. Use the arrow keys or mouse to move to where you would like to insert the text. Notice that choosing Cut or Copy automatically takes you out of Select mode.
2. When the cursor is at the point to insert the text, choose Paste and the text will appear.

***Note:** The Paste buffer will only hold the last cut or copied text. If you want to move two different sections of your document, you need to move them one at a time. Choosing Cut or Copy will remove any existing text in the Paste buffer and insert the next text.*

Searching for and Replacing Text

If you want to find a particular text string or replace it, you can use the Search and Replace commands.

❑ To find a character string:

- Choose Search. A dialog box appears asking you to enter the character string you want to search for. Press Enter to start the search. Once the character string has been found, you can press S, or click on Search on the bottom line to repeat the search, or ESC (or press X or click on "Exit") to cancel.

❑ To replace a character string:

- Choose Replace. Dialog boxes appear asking you to enter the characters you want to replace and the characters you want to replace them with. Press ENTER to start. When the characters are found, the editor stops so you can replace each occurrence of the text. Press R or click on "Replace" to replace the text or ESC (or press F3 or click on Exit) to cancel.

Showing Carriage Returns

Choose the Show command to see where carriage returns are in your text.

Saving Text

You can save your work as you type by choosing the Save command.

Exiting the File Editor

When you are ready to exit the file editor, press the `ESC` key, or click on the close box with the mouse, or choose the Exit button. PC Shell then displays a dialog box asking you to confirm that you want to save before leaving. Every time you save, PC Shell renames the previous version of your document, giving it the `.BAK` extension, so if you ever want to undo your work, you can edit your old file.

Printing

You can also format and print the documents you created and edited using PC Shell's file editor. Use the Print File command found on the File menu. To print your text, exit out of the file editor with the `Esc` key after saving your document, select the file you want to print, and choose the Print File command from the File menu. You can also print documents using Notepads in Desktop.

For more information on formatted printing, please refer to the section entitled "Printing Files."

Using your own Editor

If you would like to use your own text editor, refer to the "Running Programs from PC Shell" chapter to learn how to add your editor to PC Shell's Applications menu. Then you can edit a file as easy as moving the highlight bar to the file and pressing `CTRL-ENTER`, or double-clicking on the file with the left mouse button.

For example, if you added the XYZ editor to PC Shell's Applications menu to run with `*.TXT` files, all you need to do is highlight the file you want to edit, then launch your editor by double-clicking on the file with your mouse, or pressing `CTRL-ENTER`.

The easiest way to have access to your own editor is to run PC Setup and have it automatically installed for you.

13. Using PC Shell with a Laptop Computer

LapLink Quick Connect, developed by Traveling Software, Inc. enables you to connect two computers with a serial cable and then use PC Shell to access the disk drives on both machines for performing such operations as copying files from one machine to the other.

For example, if you plan to leave on a business trip and want to copy files from your office desktop machine to your laptop computer before you leave, you can run LapLink Quick Connect on both machines and then use PC Shell to select the files you want to copy to your laptop. You can then copy the files the same way you would copy files from one directory to another using PC Shell. When you return from the business trip, copy any changed files back to the desktop machine in your office.

LapLink Quick Connect runs as a TSR program in the machine running PC Shell, called the "client," and as a stand-alone program on the other machine, called the "server." Your desktop machine would typically be the client and your laptop the server. The two machines are connected with a null modem cable, which can be purchased from Traveling Software at (206) 483-8088.

Once both programs are running, you can run PC Shell on the desktop machine and the Laptop's disk drives will appear on PC Shell's Drive Line.

LapLink Quick Connect Files

LLS.EXE	Runs on the server (laptop) machine.
LLQC.EXE	A TSR that must be installed on the client (desktop) machine.

LLS and LLQC Parameters

The following parameters are available for setting the baud rate and COM port for your computers. Parameters may be preceded by either a dash (-) or a switch character (/).

/?

Displays a help screen with all of the parameters recognized by LapLink Quick Connect.

/U

Unloads LLQC from memory.

/B:*nn*

This parameter sets the baud rate for transmission (where *nn* refers to the baud rate). The rate can be from 300 to 115200. The default is 115200.

/C:*n*

Tells LapLink Quick Connect which communications port (where *n* is COM port #1 or #2) you are using for transmission. COM port 1 is the default.

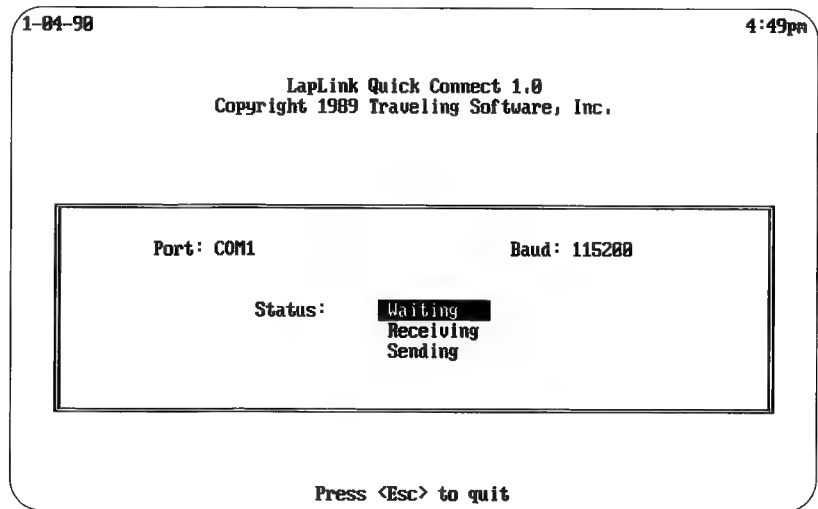
/I:*n*

If you are using a serial card or internal modem with COM3 or COM4 support, the /I parameter (where *n* is the interrupt number 2-15) allows you to select the proper IRQ. Refer to your hardware manual for more information on which IRQ your serial board or modem uses.

Installing LapLink Quick Connect

1. Make sure the null modem cable is installed, connecting your desktop and laptop machines together, according to the directions which come with it.
2. Run LLS on the laptop (server) machine.

This installs LapLink Quick Connect using baud rate 115200 and COM port #1 (the defaults).



If you used PC Setup to install LapLink Quick Connect in your AUTOEXEC.BAT file, you can skip step 3; it has already been done.

3. Run LLQC on your desktop (client) machine (or install it in your AUTOEXEC.BAT file before PC Shell).

This installs LapLink Quick Connect as a TSR using baud rate 115200 and COM port #1 (the defaults).

LLQC must be installed before PC Shell is run or installed resident.

If you want to run PC Shell in resident mode, install it now. If you used PC Setup to install PC Shell, this has already been done for you.

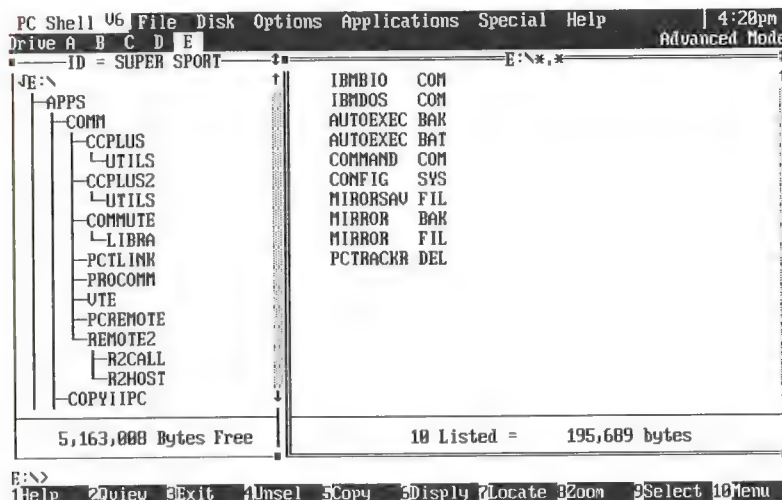
4. Run PC Shell.
5. Choose the LapLink/QC command from the Special menu. The connection to the laptop machine is made.

A dialog box appears, showing how the laptop's disk drives will appear on PC Shell's Drive Line.

The disk drives of the server computer (laptop) will appear on the drive line of PC Shell (see the following screen). In this example, drive D is the server's floppy drive and drive E is the server's hard drive. Drives D and E appear as network drives to PC Shell, which

13. Using PC Shell with a Laptop

means the same functions you are unable to perform on network drives are not available on laptops. For example, you cannot format a disk or copy a disk on a laptop drive.



Important: When you are through using the connection, choose the LapLink/QC command to terminate the connection. If you do not, when you exit PC Shell, you will be reminded that the connection is still active and prompted to turn it off. If you have a Two List Display on the screen and the inactive drive is a LapLink drive, when you turn off the LapLink drive, the second set of windows disappears. If the LapLink drive is the active drive you will be unable to turn it off.

☐ To remove LLQC from memory on the desktop (client) machine:

Since the LLQC TSR running on the client is so small, you can leave it in memory without any interference with other programs; however, if you wish to remove it, type the following:

Kill

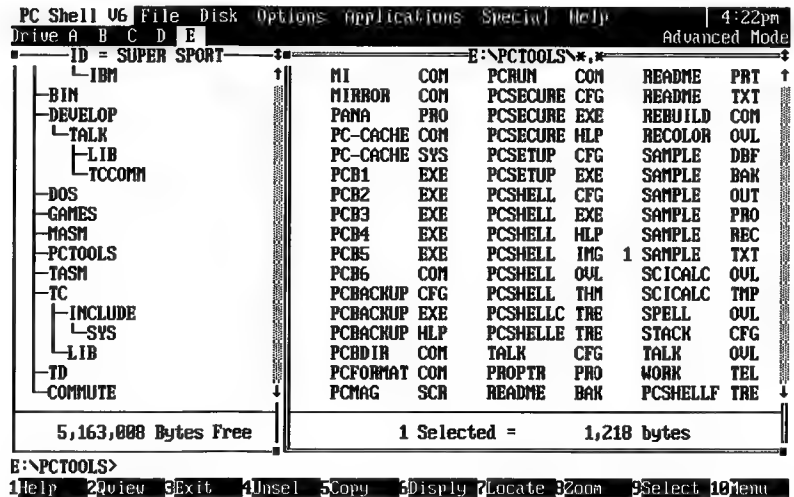
which removes LLQC, PC Shell, Desktop and Backtalk, if they are loaded resident.

Copying Files to a Laptop Computer

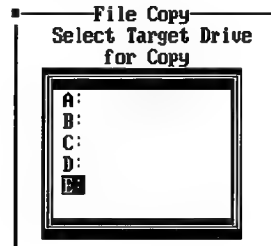
☐ To copy files:

- 1 Select the desktop machine drive on PC Shell's Drive Line that contains the files you want to copy to your laptop.

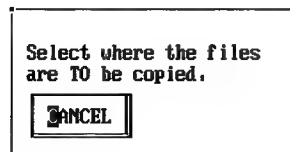
- Select the file(s) you want to copy from the File List Window.



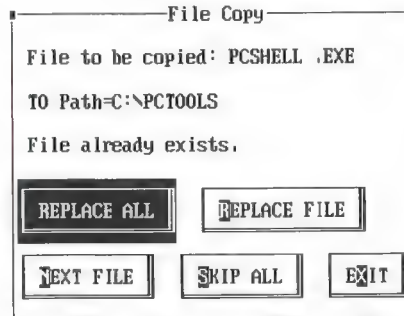
- Choose the Copy File command from the File menu. The File Copy dialog box appears for you to select the destination for your file. Select your laptop's hard disk by pressing the letter of the drive. In this case E.



- If the target drive contains subdirectories, they will be displayed in the Tree Window and a message appears (below) requesting you to select the subdirectory where the file(s) are to be copied.



5. From the Tree Window select the subdirectory to copy the file(s) to.
6. If the selected file name(s) exist in the target subdirectory or drive, the File Copy dialog box (below) is displayed for you to select one of the five options.



Replace All: replaces all file(s) in the target subdirectory with the same name(s) as the selected file(s).

Replace File: replaces the current file in the target subdirectory with the same name as the selected file.

Next File: skips to the next file. No action is taken on the current file.

Skip All: skips all selected files and returns to the main PC Shell screen.

Exit: returns to the main PC Shell screen.

PC Shell copies the file(s) to the laptop, displaying the File Copy dialog box with the file being copied and the path of the new location. Upon completion you are returned to the main PC Shell screen.

14. Launching Telecommunication Services

If you have PC Tools Desktop installed, you can access MCI, CompuServe, EasyLink, Central Point Software's BBS, and any other service you installed in Desktop's Modem Telecommunications from PC Shell. If you used PC Setup to install these services in PC Shell's application list, all you have to do is select a file and then launch the service from PC Shell's Applications menu.

For example, you used PC Setup to install MCI Mail in PC Shell's Applications menu, and you want to send a status report to your boss once a week using MCI's Fax capability. Create the file STATUS.FAX with PC Shell's Text Editor. Then just highlight the file and press CTRL-ENTER. This launches Desktop Telecommunications, selects MCI Mail, logs you on using your MCI ID and password, selects the fax service, and brings up the TELECOM database for you to select your boss's fax phone number from. Once you have selected the phone number, the file, STATUS.FAX is sent to your boss, and you are returned to PC Shell. All you have to do is update the STATUS.FAX file each week and repeat the same easy procedure to send it.

The following services are optionally installed in PC Shell's Applications menu when you run PC Setup:

- MCI
- CompuServe
- EasyLink
- Central Point Software's BBS

You are also given the opportunity to install the access phone numbers, user IDs, and passwords necessary to use these services. If you would like to install any of these services at this time run PC Setup now. (Make sure you have this information available when PC Setup requests it.)

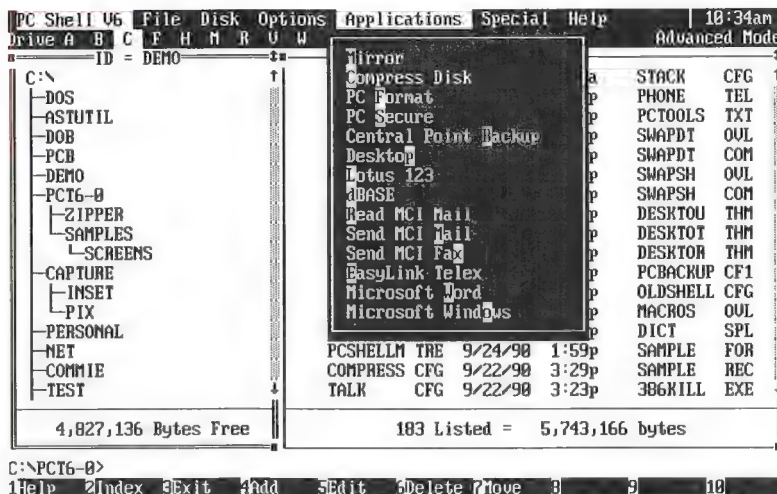
Sending Mail

With PC Shell you can send electronic mail to another account using any of the services mentioned above (MCI, CompuServe, EasyLink, or Central Point's BBS). To send mail, first create a file containing

your message and give it an extension of .MAI. You can do this with PC Shell's Text Editor. Once you have created the file you can send it in one of the following ways:



- Select the file you want to send with the .MAI extension, then select the "Send Mail" entry for the service you are using from PC Shell's Application menu.



or

- Select the file you want to send with the .MAI extension and press CTRL-ENTER, or
- Double-click with the left mouse button on the file that you want to send.



Once Desktop Telecommunications has dialed the mail service and logged you on, it will load the TELECOM database from which you can select the person and the person's ID (for example, MCI ID) to whom you want the file sent.

If you want to enter the name and ID manually, instead of selecting them from the database, press ESC and you will be asked to enter the name of the person you want to send the mail to, as well as the ID.

If you do not want to enter the name and ID every time you send a mail message, you can use the TELECOM database to hold your frequently used names and numbers. Please refer to the MCI Mail

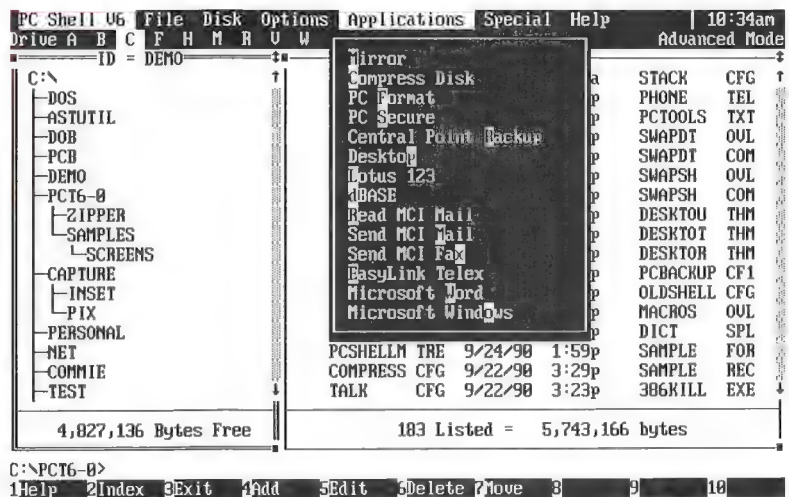
section of the "Modem Telecommunications" chapter in the PC Tools Desktop manual.

Note: If you installed BACKTALK, the mail will be sent in the background, returning you to PC Shell while the mail is being sent.

Reading Mail

You can also read (download) the electronic mail stored in your mailbox.

1. Select the "Read Mail" entry for the service you are using from PC Shell's Application menu.



Once Desktop Telecommunications has dialed the service and logged you on, you receive a message on the screen telling you that you have mail. The mail is then captured and placed in an ASCII text file named TODAYS.MCI, (or if you are using EasyLink, TODAYS.ESL) and stored in the directory you ran Desktop from.

2. After the mail has been captured, you are logged off the service and returned to PC Shell.
3. Select the file from the directory where your PC Tools programs are located. For example, you might select, TODAYS.MCI.
4. Choose Edit File from the File menu.
The file, TODAYS.MCI, appears for you to view your mail.

You can also print the mail file by choosing the Print File command.

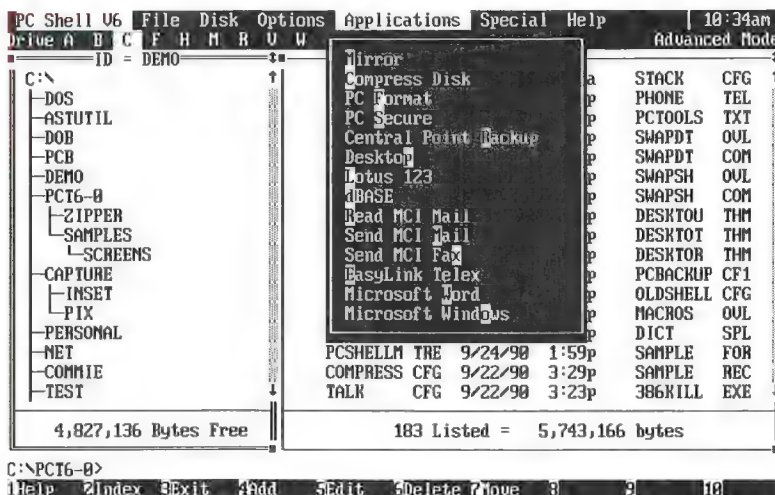
Note: If you installed BACKTALK, the mail will be captured in the background, returning you to PC Shell while the mail is being captured.

Sending a Fax



You can also send a fax from your computer to a facsimile machine. To send a fax using MCI, EasyLink, or CompuServe, create a file containing your message with an extension of .FAX. You can do this with PC Shell's Text Editor. Once you have created the file you can send it to MCI's fax service in one of the following ways:

- Select the file you want to send with the .FAX extension, then select the "Send FAX" entry for the service you are using from PC Shell's Application menu.



or

- Select the file you want to send with the .FAX extension and press CTRL-ENTER, or
- Double-click with the left mouse button on the file that you want to send.

Once Desktop Telecommunications has dialed the service you requested and logged you on, it will load the TELECOM database from which you can select the recipient's name and fax number.

If you want to enter the name and number manually, instead of selecting them from the database, press **ESC** and you will be asked to enter the name of the person you want to send the fax to, as well as the fax phone number.

If you do not want to enter the name and phone number every time you send a fax, you can use the TELECOM database to hold your frequently used names and numbers. Please refer to the MCI Mail section in the "Modem Telecommunications" chapter of the PC Tools Desktop manual.

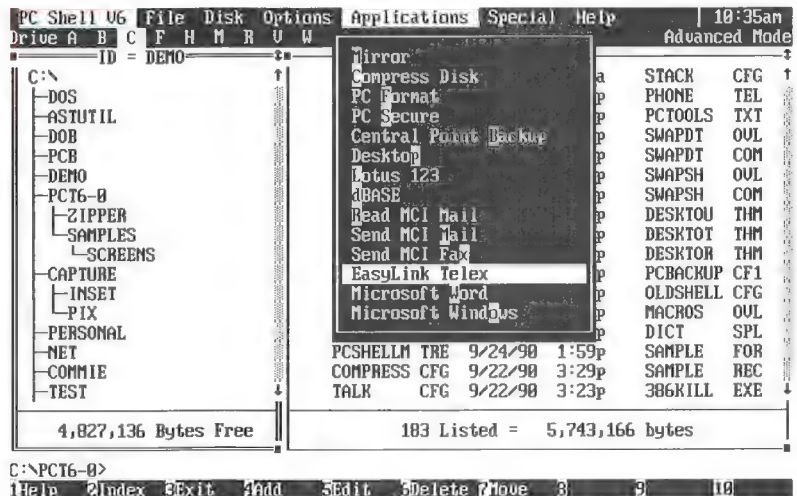
Note: If you installed BACKTALK, the fax will be sent in the background, returning you to PC Shell while the fax is being sent.

Sending a Telex



You can also send a telex from your computer to a telex machine. To send a telex using EasyLink, create a file containing your message with an extension of **.TLX**. You can do this with PC Shell's Text Editor. Once you have created the file you can send it to EasyLink's electronic telex service in one of the following ways:

- Select the file you want to send with the **.TLX** extension, then select the "EasyLink Telex" entry from PC Shell's Application menu.



or

- Select the file you want to send with the **.TLX** extension and press **CTRL-ENTER**, or



- Double-click with the left mouse button on the file that you want to send.

Once Desktop Telecommunications has dialed EasyLink and logged you on, it will load the TELECOM database from which you can select the recipient's name and telex number.

If you want to enter the name and number manually, instead of selecting them from the database, press `ESC` and you will be asked to enter the name of the person you want to send the telex to, as well as the telex phone number.

If you do not want to enter the name and phone number every time you send a telex, you can use the TELECOM database to hold your frequently used names and numbers. Please refer to the Using EasyLink section in the "Modem Telecommunications" chapter of the PC Tools Desktop manual.

***Note:** If you installed BACKTALK, the telex will be sent in the background, returning you to PC Shell while the telex is being sent.*

Installing your own Service

If you subscribe to a telecommunications service other than those installed by PC Setup, you can install them yourself.

See the "Modem Telecommunications" chapter in the PC Tools Desktop Manual for the steps needed to configure Modem Telecommunications.

Next you need to configure PC Shell's Applications menu. See the "Running Programs from PC Shell" chapter to learn how to add a service to the Applications menu.

15. Disk Functions

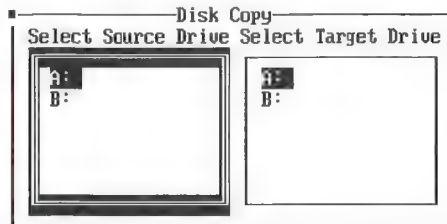
From the Disk menu, you can choose commands for getting information about your hard disk and for performing functions on disks: copying, comparing, formatting, making system disks, searching, renaming, parking, verifying, viewing and editing disks.

Copying Disks

The Copy Disk command copies standard DOS formatted floppy diskettes. Copy Disk will format the target disk as it copies so it will not have to be pre-formatted.

❑ To copy a disk:

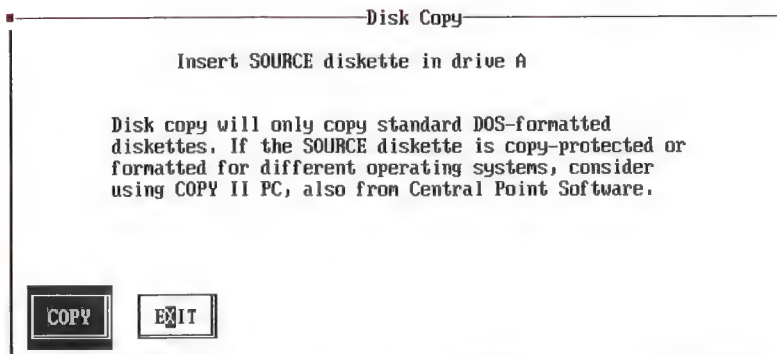
1. Choose Copy Disk from the Disk pull-down menu. PC Shell displays the Disk Copy dialog box.



Note: Both the Source and Target drives must be the same drive and media type.

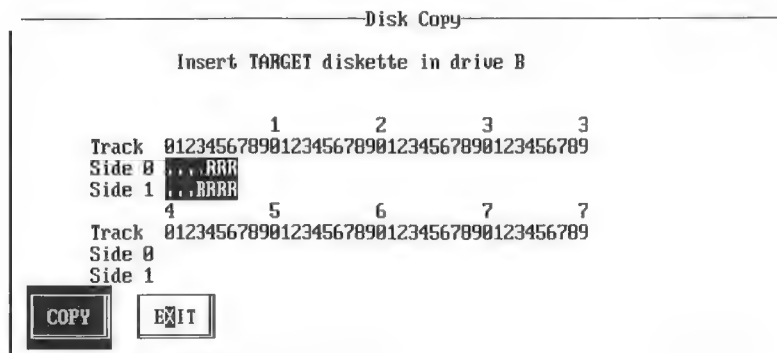
2. Insert the Source disk in the appropriate drive. To proceed, press the TAB key to move the highlight from the source drive to the target drive.
3. Select both the Source and Target drives by pressing the drive letters or clicking on the drive letters with the mouse, or press ESC to end the copy process.
4. The Disk Copy dialog box appears showing the status of the copy process.

15. PC Shell Disk Functions



You will be prompted, if necessary, to insert the Target disk.

5. Select Copy to proceed or Exit to end the copy process.



The following letters will be displayed during the copy process. If a dot appears in the track status window, that track has been copied successfully.

F: Formatting track

R: Reading track

W: Writing track

When the copy is complete, PC Shell will return you to the main PC Shell screen.

Note: If you use PC Shell in resident mode to make disk copies frequently, and you only have a single disk drive, you may want to start PC Shell with more memory. For example, try starting PC Shell with /RL. This won't

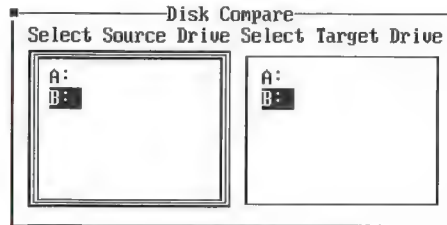
take any more memory when PC Shell is not active, but will allow it to use more memory for disk copies, which will minimize disk swapping.

Comparing Disks

The Compare Disk command compares standard DOS formatted floppy diskettes.

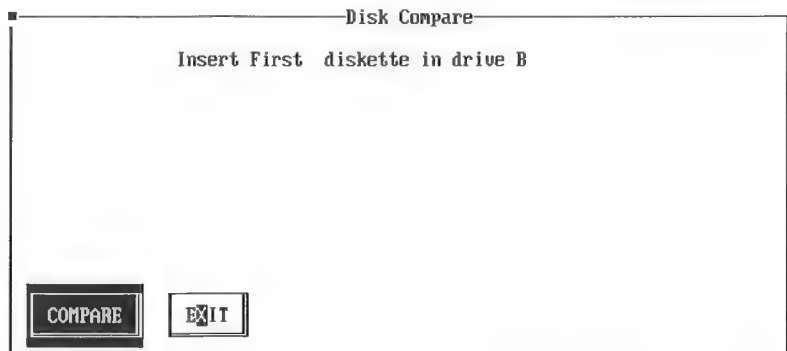
❑ To compare a disk:

1. Choose Compare Disk from the Disk pull-down menu. PC Shell displays the Compare Disk dialog box.



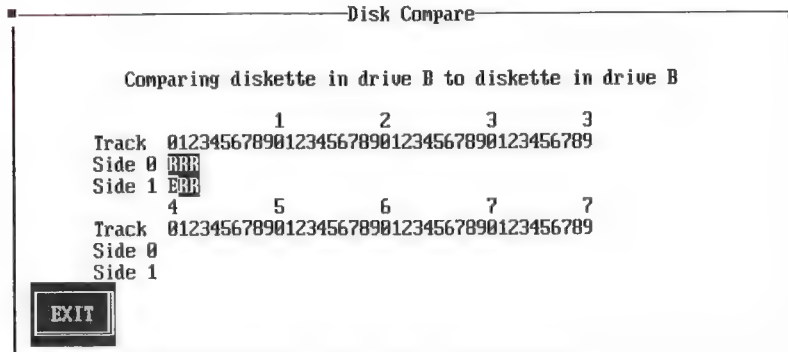
Note: Both the Source and Target drives must be the same drive and media type.

2. Insert the Source disk in the appropriate drive.
3. To proceed, press the `TAB` key to move the highlight from the source drive to the target drive.
4. Select the Source and Target drives by pressing on the drive letters or clicking the drive letters with the mouse, or press `ESC` to end the compare process. The Disk Compare dialog box will come up showing the status of the compare process.



15. PC Shell Disk Functions

5. You will be prompted to insert the Target disk.
6. Select Compare to proceed or Exit to end the Compare process.



Note: The following letters will be displayed during the compare process. If a dot appears in the track status window, that track has been compared successfully.

R: Reading track

C: Comparing track

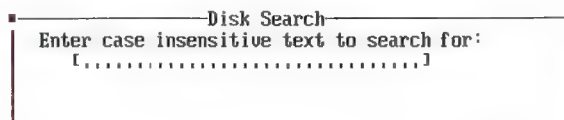
7. Select Exit when you are done to return to the main PC Shell screen.

Searching Disks

Search Disk will scan the entire selected disk (including deleted files) for a certain character string. Once it is found, it may be viewed or edited.

❑ To search a disk:

1. Choose Search Disk from the Disk pull-down menu. The Disk Search dialog box appears:



2. To search for a string of ASCII characters, type in the desired characters on the ASCII line. This type of search will not be case sensitive.

- To search for HEX values, press F9 to select HEX mode and type the desired string as HEX values. This type of search is case sensitive. If you enter invalid hex values, PC Shell notifies you with a beep.

Remember: The ASCII search is NOT case sensitive. That is, you can enter text in any combination of upper or lower case letters. If a HEX string is entered, an EXACT MATCH is done. The maximum size of a search string is 32 characters.

3. Press ENTER to start the search. As PC Shell scans the disk, a progress indicator appears:



When PC Shell finds the matching bytes, it displays the following options on the bottom line:

[F7] Search: continues searching the disk for the matching bytes.

[F8] Name: displays the following dialog box showing the file name of the matching sector.



[F9] Edit: enters the edit mode. The Sector Edit dialog box appears with the cursor on the first byte of the matching string. Using the Sector Edit you can edit or view sectors with the HEX/ASCII display. See the Hex Edit command in the File menu section for information on editing a sector.

Renaming Disks

The Rename Volume command on the Disk menu allows you to rename a disk volume label.

❑ To rename a disk:

1. Select the drive you want to rename from the Drive Line.

2. Choose Rename Volume from the Disk pull-down menu. The Disk Rename dialog box appears.



3. Enter the new volume label name and select Rename to proceed. Select Cancel to end the rename process.

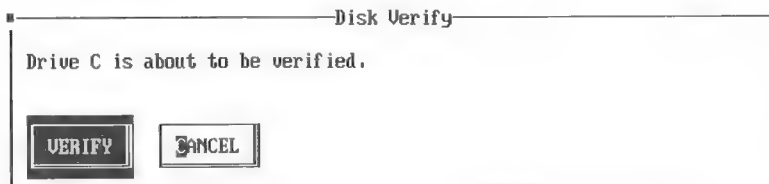
Verifying Disks

The Verify Disk command allows you to verify that all of the data on your disk is readable. This data includes files, subdirectories, and unused space.

Note: Verify Disk works only with DOS formatted disks which are not copy-protected. Verify Disk does not work on unformatted disks since there's no data to verify.

☐ To verify a disk:

1. Select the drive you want to verify.
2. Choose Verify Disk from the Disk pull-down menu.
3. Select Verify to begin verifying. The Disk Verify dialog box appears.



If PC Shell finds a bad sector that has not been previously marked by DOS, it displays the sector number containing the error. PC Shell will also indicate whether the sector is part of the DOS system area, part of an existing file, or available for use.

If the sector is available, PC Shell marks the sector as bad to prevent its future use. If the bad sector is already allocated to a file or

subdirectory, PC Shell displays a message recommending that you run the Compress "Surface Scan" option which will attempt to move the data to a safe area of the disk.

To return to the main PC Shell screen, select Exit.

View/Editing Disks

The View/Edit Disk command allows you to view the contents of any sector on the disk, whether or not it is part of a file. Once the sector is displayed, you can optionally make changes to it. A good understanding of hexadecimal, sector bytes, and ASCII is helpful when using View/Edit.

❑ To view/edit a disk:

1. Select the drive you want to view or edit.
2. Choose View/Edit Disk from the Disk pull-down menu. The Disk View/Edit dialog box is displayed with the Absolute sector number, System area or Cluster number and the Disk Absolute sector number displayed at the top of the screen.

The screenshot shows the PC Shell V6 Disk Edit interface. At the top, there's a menu bar with 'File', 'Disk', 'Options', 'Applications', 'Special', and 'Help'. Below the menu bar, it says 'Drive A B C' and 'Advanced Mode'. The main window is titled 'Disk Edit' and shows 'Absolute sector 0000000, System BOOT, Disk Abs Sec 0000000'. The display shows a hex dump of a sector, with each line representing 16 bytes. The first column shows the absolute sector number (e.g., 0000(0000), 0016(0016), etc.), followed by the hexadecimal bytes, and then the ASCII representation. The ASCII part shows various characters, including some that are not printable (represented by dots). At the bottom, there's a status bar with 'Help', 'Index', 'Exit', 'Sector', 'Edit', 'Name', and 'ID'.

On a hard disk, the sector size is usually a multiple of 512 bytes, but may vary from drive to drive. The View/Edit display shows 256 bytes, or half a sector, on the screen at a time.

The numbers in the left column are "offset" or "displacement" numbers which indicate the position within the sector. Each of the 512 bytes of the sector are numbered

from 0 to 511 (0000 to 01FF in hexadecimal). The first line shows the first 16 bytes, 0 through 15. The next line shows the next 16 bytes, 16 through 31, etc. The displacement number in the left column indicates how many bytes into the sector each line is (0000, 0016, 0032, etc). The numbers in parentheses are the same offset numbered in hexadecimal.

The middle column displays 16 bytes of the sector in each line. Each byte is displayed as two-digit hexadecimal numbers. The same 16 bytes are displayed in ASCII values in the right column. Some or all of the ASCII values may appear unreadable. This is because those bytes may be program or data values and were never intended to be displayed as text.

The following keys are available for editing:

HOME: moves to the first sector of the disk.

END: moves to the last sector of the disk.

PGUP: moves the display to the previous half-sector.

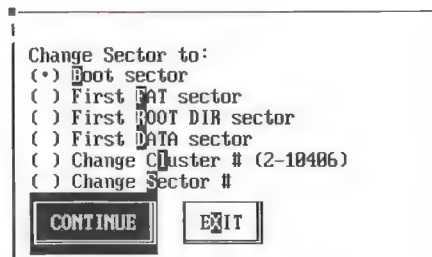
PGDN: moves the display to the next half-sector.

3. Select any of the following commands from the bottom line to edit the disk:

[F7] Edit: enables you to make changes to a sector (described in the next section, "To Edit a Sector on a Disk").

[F8] Name: displays the file name to which the sector belongs.

[F6] Sector: displays a dialog box with six "move to" selections:



Boot sector: moves to the first byte of the disk Boot Record.

First FAT sector: moves to the first byte of the File Allocation Table.

First Root DIR sector: moves to the first byte of the Root Directory.

First Data sector: moves to the first byte of first Data Sector.

Change Cluster #: allows you to enter the cluster number to move to the cluster.

Change Sector #: allows you to enter the sector number to move to the sector.

❑ To edit a sector on a disk:

1. Select Edit from the bottom line of the Disk View/Edit dialog box or press F7.

2. Use the Up, Down, Left or Right arrow keys to move the cursor from byte to byte. Position the cursor over the first byte you want to change.
3. Type in the new hexadecimal values. They replace the original bytes at the cursor position. The new values will appear in color or in a highlighted display. The

corresponding ASCII characters will automatically change in the ASCII column.

Note: If you prefer, you may make changes to the ASCII column instead of the HEX column by selecting the F8 key. The corresponding values on the HEX column will also change.

4. Select Save (or F5) to write your changes to the disk. To disregard the changes, press ESC, F3, or click on the close box and you will return to the Sector Edit window.

Formatting Data Disks

The Format Data Disk command allows you to format a new data diskette. Format Data Disk is convenient when PC Shell is running resident. You can call PC Shell from another program to format a data disk, then return to your program and save data to the new disk.

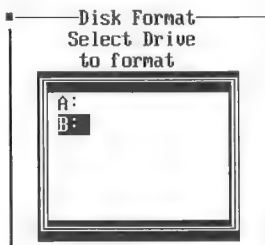
Note: Formatting initializes each track of the disk so that your computer can recognize it as a DOS disk. Formatting is also used to erase anything currently on a disk. New disks must be formatted before they can be used to store data.

We highly recommend using the proper media for the type of format you choose. Formatting a 720K disk as 1.44MB may produce unpredictable results.

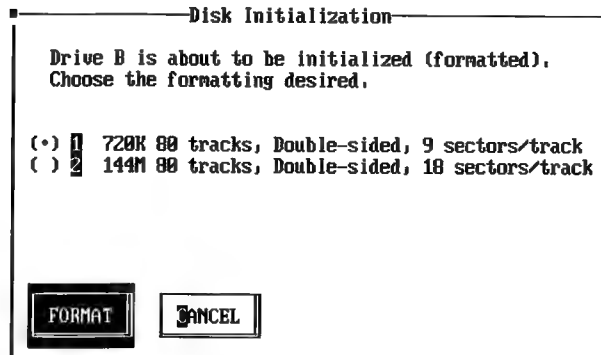
Format Data Disk is designed for formatting new data disks - not for making bootable disks. You can, however, use the Make System Disk command to create a bootable disk. For details on this procedure, see the "Making System Disks" section in this chapter.

☐ To format a disk:

1. Insert the diskette to format in the appropriate drive.
2. Choose Format Data Disk from the Disk pull-down menu. The Disk Format dialog box appears asking you to select the drive containing the disk.



3. To proceed, select a drive by pressing a drive letter or clicking on a drive letter with the mouse, or press ESC to cancel.
4. The Disk Initialization dialog box appears, listing the appropriate formatting options.



PC Shell displays all the format options that are supported by the selected drive. The possible options are the following:

160K single-sided; 8 sectors per track; 40 tracks

180K single-sided; 9 sectors per track; 40 tracks

320K double-sided; 8 sectors per track; 40 tracks

360K double-sided; 9 sectors per track; 40 tracks

1.2M high capacity; 80 tracks; double-sided; 15 sectors per track

720K 3 1/2 diskette; 80 tracks; double-sided; 9 sectors per track

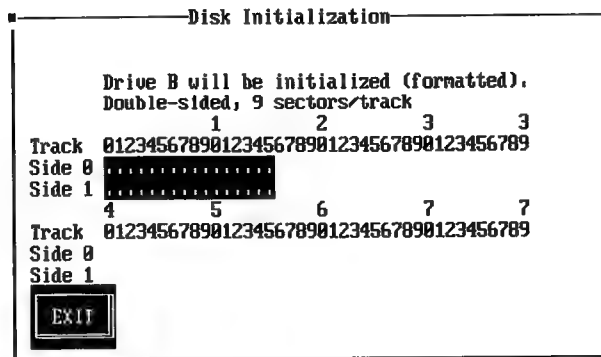
1.44M high capacity; 80 tracks; double-sided; 18 sectors per track

The 1.2M and 1.4M options are usually available only on machines with 80286 and 80386 processors. In addition, 1.44M options require PC DOS version 3.2 or higher, or MS-DOS version 3.3 or higher. DOS's DRIVER.SYS file may need to be installed in your CONFIG.SYS file before all formatting

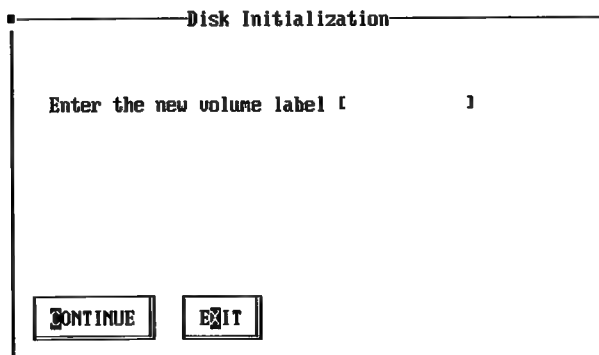
15. PC Shell Disk Functions

options are present. Please refer to your DOS manual for more information on the use and installation of this file.

5. Select the option you want to use to format the disk and then select Format to proceed or Cancel to cancel the format.
6. The Disk Initialization dialog box displays the status of the disk being formatted. To terminate the formatting process select Exit.



7. When the format is complete, the Disk Initialization dialog box prompts you to enter the new volume label. Type in the name of the new disk and select Continue to proceed or select Exit for a blank volume name.



8. The Disk Initialization dialog box asks you if you want the disk to be bootable; select Bootable. If not, you may select Skip to proceed to the Disk Initialization dialog box to format another disk or Exit to return to the main PC Shell screen.

Note: Making a disk bootable takes disk space, so unless you plan to boot from the disk, we recommend not taking this option. If you do take this option, the disk will not be immediately bootable, but will have the boot record, and space will be reserved for the DOS files. For details on making a disk bootable, see the "Making System Disks" section next.

9. If you select Skip, the Disk Initialization dialog box will display the following disk information:



Number of bytes of total disk space

Number of bytes in bad sectors

Number of bytes available on the disk

10. Select Next Disk to format another disk or Exit to return to the main PC Shell screen.

Making System Disks

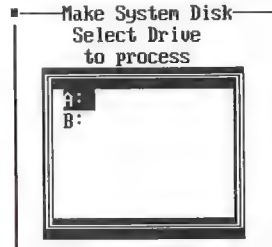
The Make System Disk command allows you to transfer the system files to a formatted disk so it can be used to boot the system.

Note: The Make System Disk command will transfer the system files to a newly formatted disk. The disk must be blank, so that one of the system files may be placed in an exact location on the disk. If this location is not available, the transfer will fail.

❑ To make a system disk:

1. Insert the diskette you want to make bootable in the appropriate drive.

2. Choose Make System Disk from the Disk pull-down menu. The Drive Select dialog box appears asking you to select the drive containing the disk.



3. To proceed, select a drive by pressing a drive letter or clicking on a drive letter with the mouse, or press ESC to cancel.

The Make System Disk dialog box will ask you to verify the process.



4. Select System to proceed or Exit to return to the main PC Shell screen.

Note: The Make System Disk function will report any errors in the process or successful completion.

Getting Disk Information

The Disk Info command displays helpful information about a disk such as the available disk space, number of hidden and user files and the number of bytes in bad sectors.

❑ To get disk information:

1. Select the drive you want information for.
2. Choose Disk Info from the Disk pull-down menu. PC Shell displays the information about the disk.

```

Disk Information
Volume Label HARD_DISK   created on 12/13/89

21,389,440 bytes of total disk space.
 3,588,224 bytes available on volume.
 55,296 bytes in    4 hidden files.
17,719,296 bytes in 1,005 user files.
 83,968 bytes in   33 directories.
   0 bytes in bad sectors.
 512 bytes per sector.
   4 sectors per cluster.
 17 sectors per track.
10,405 total clusters.
41,735 total sectors.
 2,455 total tracks.
   4 sides.
 614 cylinders.
EXIT

```

3. Select Exit to return to the main PC Shell screen.

Parking Disks

The Park Disk command parks the hard disk head. This is recommended if you are going to move your computer, as it will position the head over an unused portion of your hard disk. This prevents loss of data caused from the head “bouncing” on the disk surface.

❑ To park the disk:

1. Choose Park Disk from the Disk pull-down menu. The hard disk head is parked at the highest cylinder on the drive. On a partitioned hard disk, this is at the end of the last partition.
2. Select Cancel to continue working and return to the main PC Shell screen.

You can also park the heads of the current drive of your hard disk by executing the Park command on the DOS command line. Just type

```
Park
```

Mapping Disks

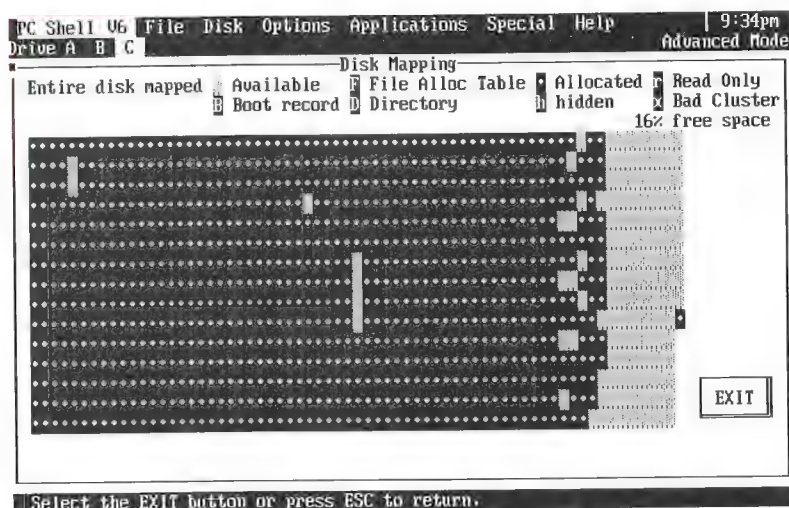
The Disk Map command allows you to see which sectors, or “clusters” of a disk are used by which files and which sectors are free for use. This is helpful in seeing if your files are fragmented (made up of sectors from random places on the hard disk). Fragmented files can cause poor system performance.

❑ To map a disk:

1. Select the drive you want to map.

15. PC Shell Disk Functions

2. Choose Disk Map from the Special menu. PC Shell displays the Disk Map screen. Select Exit to return to the main PC Shell screen.



Note: Each position in the grid represents one cluster. DOS always allocates disk space for files a cluster at a time. Clusters can be different sizes depending on the disk. On single-sided floppy disks, one cluster equals one sector. On double-sided disks, one cluster equals two sectors. On hard disks, clusters can be 4, 8 or more sectors long. Regardless of the size of a cluster for any given disk, DOS always sets aside disk space by clusters, not sectors.

For floppy disks with 40 tracks per side, PC Shell shows the corresponding track numbers above the grid (Track 0, 5, 10, 15, etc.). If you're mapping a single-sided disk, the actual sector numbers are also shown on the left. For hard disks, the clusters are shown in a large grid, without track numbers (since different hard disks use tracks and sectors in different ways).

Each space in the grid contains one of the following symbols, showing what that cluster is used for:

- I Available:** This cluster is not being used and is available for file storage.
- B Boot record:** This cluster contains the boot record. Every disk contains a boot record, even if it is not capable of booting DOS.

- F File Alloc Table:** This cluster holds part of the File Allocation Table (FAT), which is used to keep track of where files are stored on the disk and which clusters are available.
- D Directory:** This cluster is part of the disk's directory.
- [•] Allocated:** This cluster is part of a file.
- h Hidden:** This cluster is part of a hidden file.
- r Read Only:** This cluster is part of a Read-Only file.
- [x] Bad Cluster:** This cluster has been marked as bad and is unusable.

Note: The codes in the manual may be different from screen codes, as IBM graphics characters are used to make the display more readable.

16. Managing Directories

This section provides information for directory management.

Sorting Directories

The Directory Sort command allows you to sort the files in a selected subdirectory. You can also sort the root-level directories when you are at the root. You can sort by name, extension, size or date in either ascending or descending order.

❑ To sort a directory:

1. Select the subdirectory you want to sort.
2. Choose Directory Sort from the Special menu. PC Shell displays the Directory Sort dialog box.



3. Select one of the following sorting fields:

By Name: sorts by file name.

By Extension: sorts by file extension.

By Size: sorts by total number of bytes in file.

By Date/Time: sorts by file date and time.

By Selected Number: sorts by the number associated with the selected files.

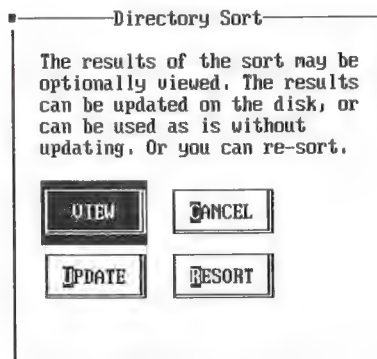
4. Also select one of the following sorting methods:

Ascending: sorts in ascending order (A to Z or smallest to largest).

Descending: sorts in descending order (Z to A or largest to smallest).

5. Select Sort to proceed. (Cancel returns you to the main PC Shell screen.)

The Directory Sort dialog box is presented with four options.



6. Select one of the following options:

View: views the sorted files without saving them to the disk.

Update: saves the sort sequence to disk.

Resort: returns to the Directory Sort dialog box.

Cancel: cancels the sort and returns to the main PC Shell screen.

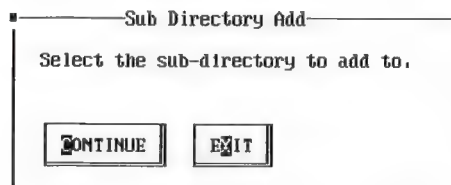
Note: In order to see the updated sort order on your root directories, you must re-read the drive (Select Re-Read the Tree from the Options menu.).

Adding a Directory

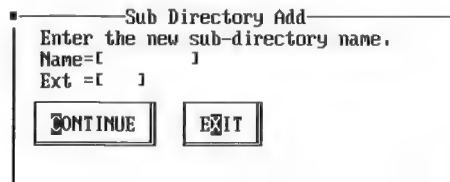
Important: If PC Shell is memory resident, be sure that no files in the affected subdirectories are in use by another program. You may need to update the path statement in your AUTOEXEC.BAT file. Also, remember to update any batch files that may depend on the old path structure.

❑ To add a directory:

1. Choose Directory Maint from the Disk pull-down menu. PC Shell displays the Directory Maintenance pop-up menu.
2. Choose Add a subdirectory from the Directory Maintenance pop-up menu.
3. If the current drive contains subdirectories, the Subdirectory Add dialog box appears, prompting you to select a subdirectory in which you want to add the new subdirectory.



4. Use the Tree Window to select where you want to add the new subdirectory or select Continue if the current highlighted subdirectory is the one you want to add a subdirectory to. Select Exit to return to the PC Shell screen.



5. Type in the name (and optionally the extension) of the new subdirectory and select Continue to add the subdirectory. Select Exit to return to the PC Shell screen.

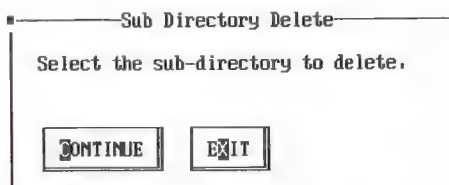
Deleting a Directory

You can only delete subdirectories that contain no files. If the subdirectory contains files, refer to the "Deleting Files" section of the "Managing Files" chapter for information on deleting them.

❑ To delete a directory:

1. Choose Directory Maint from the Disk pull-down menu. PC Shell displays the Directory Maintenance pop-up menu.

2. Choose Delete a subdirectory from the Directory Maintenance pop-up menu.
3. The Subdirectory Delete dialog box will appear prompting you to select a subdirectory to delete.

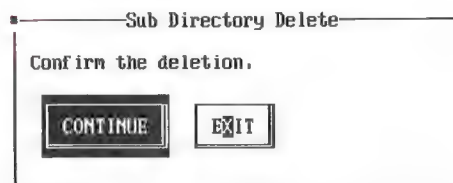


4. Use the Tree window to select which subdirectory you want to delete and press ENTER.

or

Click Continue if the current highlighted subdirectory is the one you want to delete.

Note: The Root directory cannot be deleted.



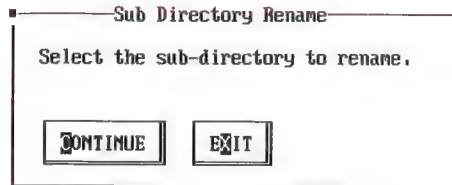
5. Select Continue to confirm the deletion or select Exit to terminate the process and return to the PC Shell main screen.

Renaming a Directory

Note: The Root directory cannot be renamed.

❑ To rename a directory:

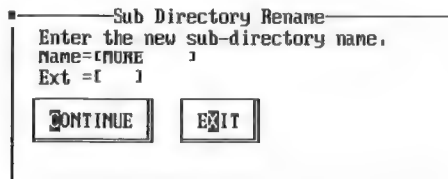
1. Choose Directory Maint from the Disk pull-down menu. PC Shell displays the Directory Maintenance pop-up menu.
2. Choose Rename a subdirectory from the Directory Maintenance pop-up menu.
3. The Subdirectory Rename dialog box appears prompting you to select a subdirectory in which to rename.



4. Use the Tree Window to select which subdirectory you want to rename and press ENTER.

or

Click Continue if the current highlighted subdirectory is the one you want to rename. Select Exit to return to the PC Shell screen



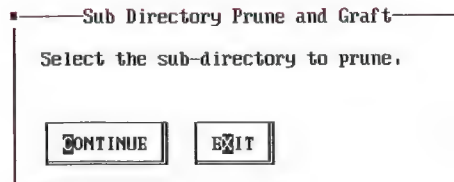
5. Type in the new name (and optionally the extension) of the subdirectory and select Continue to rename the subdirectory. If the new name is in use, you will be sent back to the Subdirectory Rename dialog box to try another name. Select Exit to return to the PC Shell screen.

Moving Directories (Prune and Graft)

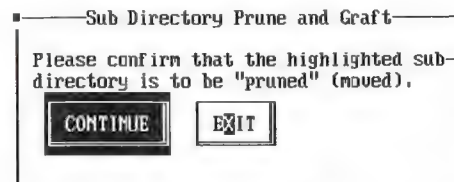
Prune and Graft allows you to move an entire subdirectory, along with all of its files and subdirectories, to a new area.

❑ To move a directory:

1. Choose Directory Maint from the Disk pull-down menu. PC Shell displays the Directory Maintenance pop-up menu.
2. Choose Prune and Graft from the Directory Maintenance pop-up menu.
3. The Subdirectory Prune and Graft dialog box will appear prompting you to select a subdirectory to prune.

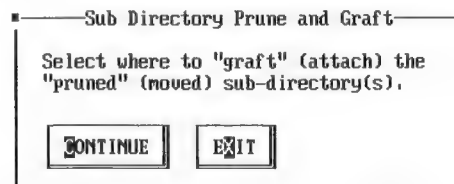


4. Use the Tree window to select which subdirectory you want to prune and select Continue. Select Exit to return to the the main PC Shell screen.



Note: The subdirectory that is being pruned is marked with a (>) symbol.

5. The Subdirectory Prune and Graft dialog box appears prompting you to select a subdirectory to graft the pruned subdirectory to.



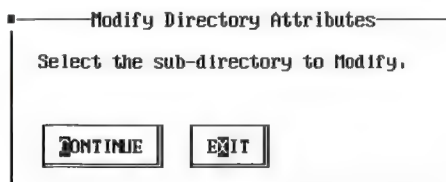
6. Use the Tree window to select which subdirectory you want to graft to and select Continue. Select Exit to return to the PC Shell screen.
7. Select Continue to confirm that the marked (>) subdirectory is to be grafted to the highlighted subdirectory. Select Exit to terminate the process and return to the PC Shell screen.

Modifying Directory Attributes

Modify Attributes allows you to specify a subdirectory as hidden, system, read-only, or archive.

❑ **To modify subdirectory attributes:**

1. Choose Directory Maint from the Disk pull-down menu. PC Shell displays the Directory Maintenance pop-up menu.
2. Choose Modify Attributes from the Directory Maintenance pop-up menu.
3. The Modify Directory Attributes dialog box appears prompting you to select a subdirectory to modify.



4. Use the Tree window to select which subdirectory you want to modify or select Continue if the current highlighted subdirectory is the one you want to modify. Select Exit to return to the Directory Maintenance pop-up menu.
5. The Modify Directory Attributes dialog box appears for you to select any of the following attributes:



Read Only (R) normally this option is not used; however, it may be used for some copy-protection schemes.

Hidden (H) makes the subdirectory “invisible” so that it is not listed when you use the DOS directory command. PC Shell, however, will display hidden directories.

System (S) makes the system subdirectory “invisible” so that it is not listed when you use the DOS directory command.

Archive (A) normally this option is not used; however, it may be used for some copy-protection schemes.



Warning: You should not change the attributes of copy-protected subdirectories or system subdirectories. Changing these attributes can result in programs not running or your hard disk not booting.

6. Select Update to confirm the selected attributes. Select Cancel to terminate the process and return to the PC Shell main screen.

Printing a Directory

The Print File List command prints a file list for a selected subdirectory.

To print a directory:

1. Select the directory you want to print the file list for.
2. Choose Print File List from the File pull-down menu.

PC Shell informs you that printing is in progress.

Note: You may change which files to print by using the File Display Options from the Options pull-down menu. See the “Managing Files” chapter for more information.

PC Shell prints the file names, size, number of disk clusters, date, time and attributes for the files in the selected directory, then returns you to the main PC Shell screen.

17. Determining your System Configuration

Getting System Information

The System Info command provides useful information about your computer.

❑ To get system information:

- Select System Info from the Special menu. The System Information dialog box appears on the screen.

```
PC Shell V6 File Disk Options Applications Special Help | 9:40pm
Drive A B C | Advanced Mode
System Information
Computer - IBM/PC AT
BIOS programs dated - 04/08/88
Operating system - DOS 3.30
Number of logical disk drives - 5
Logical drive letter range - A thru E
Serial Ports - 1
Parallel Ports - 1
CPU Type - 80286
Relative speed (orig PC=100%) - 570%
Math co-processor present - No
User programs are loaded at HEX paragraph - 3640
Memory used by DOS and resident programs - 222200 bytes
Memory available for user programs - 433152 bytes
Total memory reported by DOS - 640K
PC Shell has found the total memory to be - 640K
Enhanced Graphics Adapter present (color) - 256K
Expanded memory total - 1024K, in use - 1024K
Additional ROM BIOS found at HEX paragraph - C000
Deluxe Option Board installed - Port Address 260H DMA Channel 1

Press Esc or click Close Box with the mouse to exit.
```

The System Info screen contains the following information about your computer:

Computer: PC Shell can “recognize” all of the IBM models and many PC compatibles by looking for a signature in the ROM/BIOS. If PC Shell does not know what computer this is, it does not display this line.

The BIOS programs are dated: displays when the built-in BIOS (Basic Input/Output System) firmware was last changed. This can be useful for comparing computers, since the manufacturer should change the BIOS date if the computer’s BIOS is updated in any way.

Operating System: displays which version of DOS you've used to boot the computer.

Number of logical disk drives: displays how many drives are connected, including floppy drives, hard disks, RAM disks (electronic disks), etc. This number is also controlled with the LASTDRIVE option of your CONFIG.SYS file. Usually the default is E or 5 drives, even if you really don't have five drives.

Logical drive letter range: displays which drive letter names are available for the drives you have connected.

Serial ports: displays the number of serial ports connected.

Parallel ports: displays the number of parallel ports connected.

CPU Type: displays the type of processor installed (8088, 80286, etc).

Relative Speed: displays the CPU processing speed as measured against the original IBM PC running at 4.77 MHZ. PC Shell performs a variety of machine instructions representative of normal application programming. Because speed tests vary, the reported relative speed may slightly differ from other applications which attempt to measure the CPU processing speed.

Math co-processor present: displays if a math co-processor is found. PC Shell looks for math co-processors regardless of system switch settings.

User programs are loaded at HEX paragraph, and Memory used by DOS and resident programs: displays the size of the operating system and resident programs. These two items are related since the operating system uses the lowest area of memory and user programs are loaded directly after this. The larger these numbers are, the more memory is being used by the operating system (along with any resident programs loaded before PC Shell) and the less memory is available for user programs. If you have other resident programs that were started after PC Shell, they will not be included as operating system memory.

Memory available for user programs: displays the amount of memory available for user programs.

Total memory reported by DOS: displays the amount of memory which DOS believes to be available.

PC Shell has found the total memory to be: displays the amount of memory available. PC Shell ignores any memory switch settings and determines for itself how much memory is available in the computer (up to 640K). If the two numbers disagree, then you know that either the switches in your computer are set wrong, or a program such as a RAM disk or print spooler has taken some of the memory for itself.

Video Display type: indicates the type of display adapter being used. PC Shell recognizes CGA, EGA, Mono, VGA, and PGA adapters. If you have a VGA monitor with 512K of memory, only 256K will be reported since there is no standard method of detecting values higher than 256K.

Additional ROM BIOS found at HEX paragraph: displays whether or not expansion boards are plugged into your PC that contain "extensions" to the PC BIOS. If none are found, this line will not be displayed.

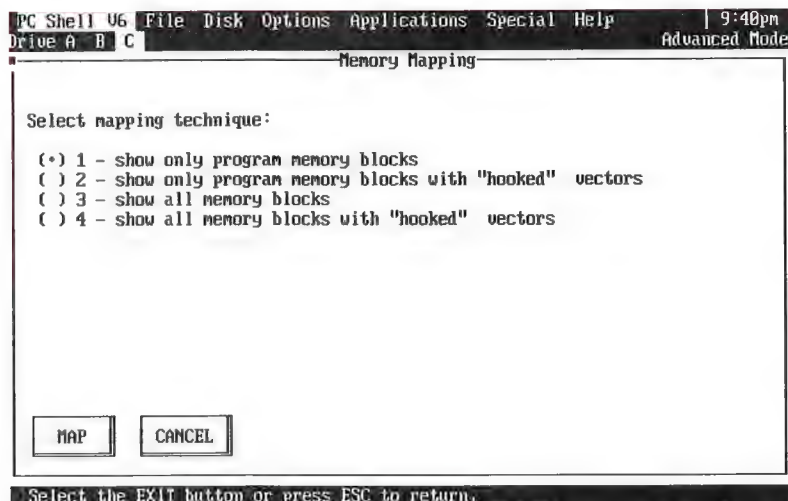
Deluxe Option Board installed: displays the port address and DMA channel in which the Deluxe Option Board is installed.

Memory Mapping

The Memory Map command lists the type, location and size of DOS memory blocks and names the applications owning them. This information is helpful in determining which memory resident programs are loaded into memory and how much memory they are using.

❑ To get memory information:

1. Select Memory Map from the Special menu.



2. Select one of the following four options:

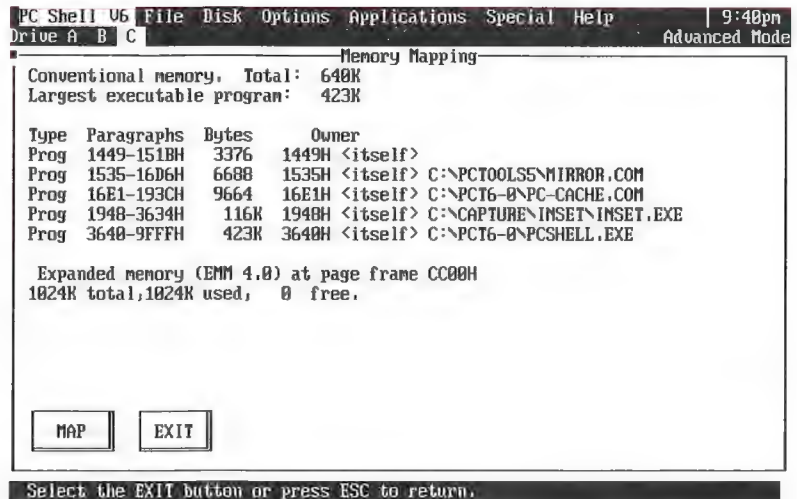
Show only program memory blocks: maps just the blocks occupied by programs.

Show only program memory blocks with "hooked" vectors: maps just the blocks occupied by programs and displays any system vectors pointing to those blocks.

Show all memory blocks: maps all memory blocks.

Show all memory blocks with "hooked" vectors: maps all memory blocks and displays any system vectors pointing to those blocks.

3. Select Map to show the memory mapping information.



The following information is displayed:

Type: The kinds of memory control blocks are the following:

Prog: Application Program

Sys: System program

Env: Dos environment

Free: Unallocated memory

Paragraphs: The memory area used by the program.

Bytes: The number of bytes in memory used by the program.

Owner: The name of the program in memory.

4. Select Map to return to the Memory Map dialog box or Exit to return to the main PC Shell screen.

Using MI.COM

MI.COM is a memory mapping program which lists the type, location and size of DOS memory blocks and names the applications using them. It is useful in determining which memory resident programs are loaded into memory and how much memory they are using.

❑ To run MI, enter the following at the DOS prompt:

```
MI [/V /A /N /Q /?]
```

All of the parameters are optional:

/V Shows only program memory blocks with "hooked vectors."

/A Shows all memory blocks.

/A/V Shows all memory blocks with "hooked vectors."

/N Does not pause the display on a full screen.

/Q Provides a quick summary only.

/? Help. Shows a listing of available parameters.

For example, if you enter `MI /A/V`, the program lists all the memory blocks occupied by programs and displays any system vectors pointing to those blocks. Or suppose you installed Mirror, PC-Cache, PC Shell, and Desktop memory resident when you ran Install. If you want to verify that these programs are, in fact, installed in memory, or if you want to know how they are using memory, type `MI` and press ENTER. A screen similar to the following appears:

```
C:\PCT6-8 >
```

```
Memory Info v5.30
```

```
Copyright 1989 Central Point Software, Inc. All rights reserved.
```

```
Conventional memory. Total: 640k
```

```
Largest executable program: 489k
```

Type	Paragraphs	Bytes	Owner
Prog	1449-151Bh	3376	1449h <itself>
Prog	1535-16D6h	6688	1535h <itself> C:\PCT6-8\MIRROR.COM C: /tC
Prog	16E1-193Ch	9664	16E1h <itself> C:\PCT6-8\PC-CACHE.COM/SIZEXP=128K
Prog	1948-1BD2h	10416	1948h <itself> C:\PCT6-8\PCSHELL.EXE/R
Prog	1BDE-2599h	39872	1BDEh <itself> C:\PCT6-8\DESKTOP.EXE/R
Prog	25A5-9FFFh	489k	25A5h <itself> C:\PCT6-8\MI.COM

```
Extended (AT/286/386) memory. Apparent size: 0k
```

```
Expanded memory (EMM 4.0) at page frame C000h
```

```
1824k total ( 768k used + 256k free).
```

```
C:\PCT6-8 >
```

The display may appear in a slightly different format on your machine, depending upon which version of DOS you are using.

Part 3

Disk Maintenance, Optimization, and Data Recovery

The data stored on your disks, either hard or floppy, can be the most valuable part of your computer system both in terms of time and money invested.

PC Tools Deluxe provides a collection of utilities to perform disk optimization and maintenance which, when used as recommended, will make your disk system perform optimally. Also included are utilities for recovering from most disk and data related problems that you may encounter. Recovering from such problems is much more successful if the optimization and maintenance utilities are used as recommended.

Following is a brief description of the utilities and how to use them together:

Diskfix

Diskfix is a disk maintenance and repair utility that can be used to fix most problems you may encounter with your hard and floppy disks. If you are having any problems accessing and/or using any of your disks, Diskfix is the program to use. We recommend running Diskfix regularly to ensure the integrity of your disks and correct any problems before they become serious.

Mirror/Rebuild

When you erase files or format a hard disk with most versions of DOS, the data in the files is not actually erased, only the records of the files' names (in the directory) and locations (in the FAT) are lost. If you have been using Central Point Backup, you could use the Restore command to recover everything, but that is time consuming. If that information had been saved somewhere else, you could easily recover the apparently erased hard disk files. Fortunately, there is an easier way to recover from an accidentally formatted disk or deleted files.

The programs Mirror and Rebuild provide protection against accidental ERASE, RECOVER, or FORMAT of your hard disk. Mirror will keep a backup copy of the FAT (File Allocation Table) and the root directory of your hard disk in a special file. If someday disaster strikes, you can then use Rebuild to quickly rebuild the critical disk information from the special Mirror file. Rebuild will do its best to restore your hard disk to the same state as Mirror recorded, effectively undoing the ERASE or FORMAT.

Mirror will also optionally create a "Delete Tracking" file that will save the full file name and all clusters a file occupied before it was deleted. The Undelete option of PC Shell or the command line Undelete will be able to use this information to fully recover accidentally deleted files automatically, even if the disk was fragmented.

In addition, you can run Mirror with the optional /PARTN parameter to create a copy of your hard disk partition table information so that you can recover from "Invalid drive specification" errors. Mirror/PARTN only needs to be run once, unless you change your hard disk partitions.

Compress

Because of the way DOS stores information on a disk, it is possible for data files to become fragmented. This means that parts of a file are scattered in different locations on the disk. This has two consequences. First, the file becomes much slower to access because it is not all physically located in the same general area of the disk. Second, if the file is accidentally erased or damaged, it becomes very difficult for data recovery programs (such as Undelete, Rebuild, and/or Diskfix) to completely recover the data.

Compress consolidates files that are fragmented on a disk and puts them in contiguous blocks. This speeds up file access time and improves your chances of successfully recovering any deleted or damaged files.

In the process of performing this disk optimization, Compress overwrites the unused portions of the disk and clears out the information necessary to find deleted files. This is why you should never run Compress before attempting any data recovery.

However, if you run Compress on a regular basis, your files will not become fragmented and the likelihood of recovering deleted or damaged files is much greater. An added benefit to running Compress regularly is that Diskfix can do a much better job of repairing damaged disks.

PC Format

PC Format is a replacement for the DOS FORMAT command. It will format hard and floppy disks of all densities in such a manner that Rebuild can recover from an accidental format.

PC-Cache

PC-Cache is designed to speed up disk access by storing the most frequently used information in your computer's memory. It speeds up programs by reducing the number of times the computer has to wait for the disk when reading and writing commonly used information.

Undelete

Undelete allows you to quickly and easily undelete files from the DOS command line. This program has the same capabilities as the Undelete File command found in PC Shell, but has the added flexibility of being accessible from the DOS prompt at all times.

***Note:** One of the best methods of protecting your data is to make regular backups of that data. Having an up-to-date set of backup disks or tapes can save you from losing everything should you accidentally erase your hard disk, have a hardware failure, or make a serious mistake. We recommend you use Central Point Backup for making regular backups of your data.*

18. Optimizing Your Disks and Safeguarding Your Data

If you consistently use the PC Tools Deluxe utilities as outlined below, your disks will perform optimally and your data will be recoverable in the event of a mistake or mishap.

1. Make regular backups of your hard disk with Central Point Backup.
2. Place MIRROR in your AUTOEXEC.BAT file. This will ensure that Mirror is run every time you boot your computer.
3. Place PC-Cache in your AUTOEXEC.BAT file to speed disk access.

***Note:** When you installed PC Tools, Mirror and PC-Cache are automatically installed into your AUTOEXEC.BAT.*

4. Run Diskfix on a regular basis to catch potential problems early. You should run Diskfix before Compress.
 5. Run Compress on a regular basis to avoid file fragmentation.
 6. Always use PC Format to format all disks.
- If you accidentally delete a file, you can undelete it by using the Undelete File command in PC Shell or the Undelete utility at the DOS prompt.
 - If you accidentally format a disk, run Rebuild.
 - If you are experiencing any other kind of difficulty with a disk, run Diskfix.

19. Diagnosing and Solving Disk Related Problems

The problems you may encounter with your disks and data have been separated into three basic categories: general, DOS generated error messages, and CHKDSK generated error messages. If you are having a problem, check the appropriate section for the error condition you are experiencing for a listing of the error message, possible causes, and solutions.

The general problem section explains some of the problems you may encounter with your system.

The error messages contained in the DOS section are those that are generated by DOS .

The CHKDSK command is one of DOS' built in functions. CHKDSK checks the directory and the FAT and reports disk and memory status. If you run CHKDSK and get an error message, refer to the CHKDSK error message section for instructions on what to do.

General Problems

- | | |
|-------------------------------------|---|
| Hard disk will not boot | Probable cause: The DOS system files are corrupt . The Partition Table or the boot sector is bad, or it could be a hardware failure. |
| | Solution: Reboot your computer from a floppy disk containing DOS system files in drive A:. Then insert a disk with Diskfix and run it. If you still cannot boot your hard disk after running Diskfix, but you do have access to the disk (e.g. with the DOS DIR command), run the DOS SYS command. |
| Unable to access floppy disk | Probable cause: Data damaged in such a way that DOS cannot recognize it. This may be due to sector read errors or vital sectors not being found. |
| | Solution: Run Diskfix. Run the Revitalize a floppy option before attempting to fix the disk. |

19. Diagnosing and Solving Disk Problems

Lost or damaged subdirectories

Probable cause: Damage to the FAT that points to where a subdirectory is located or garbled information in the root directory.

Solution: Run Diskfix.

Errors reading/writing disk

Probable cause: Bad sectors on the disk, possibly due to weak address marks.

Solution: Run Diskfix. If the error is on a floppy disk, use the Revitalize a floppy option. If on a hard disk, use the Surface Scan option to check for errors.

Accidental Format of Disk

Probable cause: You formatted your hard disk and not a floppy, or formatted the wrong floppy disk.

Solution: Use Rebuild. However, if the DOS FORMAT command was used to format a floppy disk, then the data is gone as it is a destructive format.

Accidental Deletion of File

Probable cause: You deleted a file accidentally.

Solution: Use the command line Undelete to recover the file, or the Undelete File command from within PC Shell.

Scrambled root directory

Probable cause: The root directory of the disk was damaged in some way.

Solution: Run Diskfix.

**Hard Drive Getting
Slower**

Probable cause: Data is fragmented.

Solution: Back up your hard disk with Central Point Backup. Then run Compress to unfragment your files. Run Mirror after using Compress.

*(**Caution:** Compress moves files from one location and places them in another, thereby overwriting previously deleted files. You cannot undelete files that were deleted before running Compress.)*

19. Diagnosing and Solving Disk Problems

DOS Error Messages

**Abort, Retry, Ignore,
Fail**

Probable cause: There is not a floppy disk in the drive you are trying to access or the drive latch is not closed. The disk may be bad or contain corrupt or missing system files.

Solution: Make sure the floppy disk is inserted correctly and the door latch is closed. If that doesn't solve the problem, run Diskfix.

**Bad command or file
name**

or

File not Found

Probable cause: You incorrectly type a file name or the file is not in your command path. The file may be deleted or may be in a lost subdirectory.

Solution: Check your spelling and current path. If the file is missing or deleted, use Undelete. Otherwise, run Diskfix.

**Cannot Find System
File**

Probable cause: There may be corrupt or missing system files.

Solution: Run Diskfix.

**Cannot load
COMMAND, system
halted**

Probable cause: The COMMAND.COM file was not on the specified path or an error in RAM occurred due to a bug in the software being run.

Solution: Reboot. If you get the same message, boot from a floppy and copy the COMMAND.COM file to the root directory of the disk. Make sure the floppy has the same version of DOS as the drive you were trying to use.

**Error Loading
Operating System**

Probable cause: An error occurred while DOS was loading.

Solution: Reboot. If error remains, run Diskfix. If necessary, use the DOS SYS command.

**Error Writing Fixed
Disk**

Probable cause: There may be damaged sectors in the system area of the disk. It may also be a physically damaged disk.

Solution: Run Diskfix and use the Surface Scan option.

**File Allocation Table
bad, drive x**

Probable cause: The FAT has been damaged possibly due to a bad sector in the FAT.

**Abort, retry, ignore,
fail?**

Solution: Run Diskfix. Diskfix will try to repair the damaged FAT, but if the damage is physical (e.g. a bad spot on the disk) Diskfix is unable to correct the problem. Since DOS keeps two copies of the FAT, Diskfix can use the second copy to proceed, but the disk is in a marginal condition. You should run Central Point Backup to do a Full backup, followed by a low level re-format of the drive. Re-partition the drive and use PC Format to initialize it again. Use the Restore function of Central Point Backup to restore your data. If the problem persists, you should replace the disk.

19. Diagnosing and Solving Disk Problems

File creation error

Probable cause: The disk or subdirectory is full. You are trying to rename or change a read-only file. It may be a physically damaged disk.

Solution: Use PC Shell to move files to other directories. Use another disk if the original one is full, or delete some files. You should run the Diskfix Surface Scan option to lock out any bad areas on the disk.

General Failure Error

Probable cause: DOS detects an error but cannot pinpoint it. This may be due to the wrong disk in the drive, disk not in the drive at all, or the boot record may be damaged. The most likely cause is an unformatted floppy disk in the drive.

Solution: Format the floppy if needed. If the error occurred while trying to access a hard disk, run Diskfix.

Incorrect DOS version

Probable cause: You are trying to use a command that is not supported by your version of DOS or the versions are mixed up.

Solution: Use the VER command to check what DOS you have. Be sure all DOS utilities installed are from the same version of DOS you are actually running.

Insufficient Disk Space

Probable cause: Disk is full.

Solution: Use another disk or delete files from the original disk. If you think the disk is not full, run Diskfix. There may be lost clusters that can be converted to files and deleted to free up space.

Invalid Current Directory

Probable cause: An error occurred while reading the directory.

Solution: Run Diskfix.

**Invalid Drive
Specification**

Probable cause: You specified a drive that does not exist or is not connected. Or the Partition Table information may be lost or corrupt.

Solution: Run Diskfix.

Invalid Partition Table

Probable cause: There is an error in the partition table in the system area of the disk.

Solution: If you saved your partition table information with Mirror (using the /PARTN parameter), you can use Rebuild to reload it back to your hard disk. Otherwise, run Diskfix. If the damage is too severe for Diskfix to rebuild the Partition Table, you may have to run FDISK and format the drive.

**Memory allocation
error**

Probable cause: Another program is trying to use memory allocated for DOS.

Solution: Reboot.

Non-DOS disk error

Probable cause: The media descriptor in the FAT is corrupt.

Solution: Run Diskfix to repair the disk.

Path not found

Probable cause: Invalid path name specified.

Solution: Check your spelling and current path. If the path contains a subdirectory you are sure exists, run Diskfix and search for lost subdirectories.

Sector not found

Probable cause: There is probably a defective spot on the disk so DOS cannot read the data.

Solution: Run Diskfix and use the Surface Scan option for a hard disk or the Revitalize a floppy option for a floppy disk.

Seek error (reading or writing)

Probable cause: The floppy disk is incorrectly inserted into the drive or the drive latch is open. DOS cannot find a track on the disk.

Solution: If error occurs using a floppy disk, check your drive door and disk. Otherwise, run Diskfix and use the Surface Scan option for a hard disk and Revitalize a floppy option for a floppy disk.

Unable to create directory

Probable cause: The directory already exists or the disk is full or a file with that name already exists.

Solution: Try a different name. Delete files if the disk is full.

Write protect error

Probable cause: The disk is write protected.

Solution: Remove the write protection and try again.

**CHKDSK Error
Messages**

Allocation error, size adjusted	Probable cause:	The number of clusters allocated to a file is not consistent with the size of the file as indicated in the directory.
	Solution:	Run Diskfix.
Cannot CHDIR to root	Probable cause:	While checking the directories on a disk, DOS is unable to get back to the root directory.
	Solution:	Run Diskfix.
Contains xxx non- contiguous blocks	Probable cause:	The disk contains fragmented files.
	Solution:	Use Compress to unfragment your files.
Convert directory to file Y/N?	Probable cause:	CHKDSK found a directory so damaged that it is no longer valid.
	Solution:	Answer N (no) and run Diskfix.

Disk Error reading (or writing) FAT

Probable cause: The FAT has been damaged possibly due to a bad sector in the FAT.

Solution: Run Diskfix. Diskfix will try to repair the damaged FAT, but if the damage is physical (e.g. a bad spot on the disk) Diskfix is unable to correct the problem. Since DOS keeps two copies of the FAT, Diskfix can use the second copy to proceed, but the disk is in a marginal condition. You should run Central Point Backup to do a Full backup, followed by a low level re-format of the drive. Repartition the drive and use PC Format to initialize it again. Use the Restore function of Central Point Backup to restore your data. If the problem persists, you should replace the disk.

Errors found, F parameter not specified.

Probable cause: CHKDSK found errors on the disk. If /F was not specified, CHKDSK continues displaying an error message, but does not correct them.

Solution: Do not use the /F parameter. Run Diskfix.

File is cross linked to cluster x

Probable cause: Two files are trying to claim the same space on the disk.

Solution: Run Diskfix.

First cluster number is invalid, entry truncated

Probable cause: The file directory entry contains an erroneous pointer to its data.

Solution: Run Diskfix.

Has invalid cluster, file truncated

Probable cause: The file directory entry contains an erroneous pointer to its data.

Solution: Run Diskfix.

Insufficient room in root directory

Probable cause: If you have used CHKDSK to recover lost chains for files, it places the recovered files in your root directory. If you get this message, the root is full.

Solution: Save the recovered files onto another disk and then delete them from the original disk. Run Diskfix to recover the remaining lost chains into files.

Invalid current directory

Probable cause: There is a bad directory on the disk.

Solution: Run Diskfix.

Invalid subdirectory entry

Probable cause: There is invalid data in a subdirectory.

Solution: Run Diskfix.

Processing cannot continue

Probable cause: The directory tree is bad and CHKDSK cannot continue.

Solution: Run Diskfix.

xxx Lost clusters found in yyy chains. Convert lost chains to files Y/N?

Probable cause: DOS at one time allocated space on the disk for data. However, no file is currently claiming this space.

Solution: Answer N and run Diskfix.

Unrecoverable error in directory

Probable cause: CHKDSK found an error in the directory it cannot correct.

Solution: Run Diskfix.

20. Diskfix

Diskfix is a powerful, yet easy to use utility that can detect and correct many problems you may encounter with your hard and floppy disks.

The preceding section “Diagnosing and Solving Disk Problems” contains a list of potential problems. Refer to that section for causes and solutions.

Run Diskfix if you are experiencing any kind of problem with any disk in your computer. Diskfix is also ideal for regular maintenance of your disks.

Using Diskfix

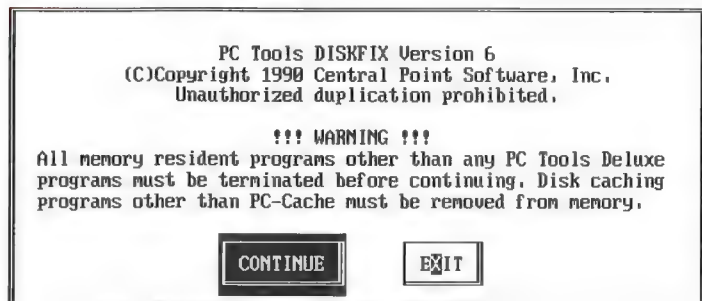
Diskfix is very simple to use. Like all PC Tools utilities, it uses the mouse or the keyboard for selecting options. Diskfix may be run from a hard disk or a floppy.

❑ To use Diskfix:

1. Start Diskfix from the DOS prompt by typing the following:

DISKFIX

2. Press ENTER.
The following screen appears:

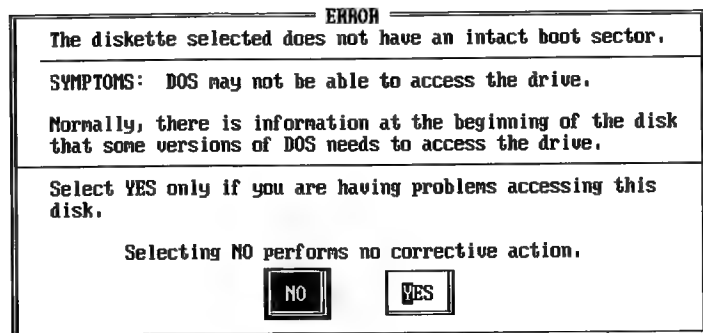


Note: All memory resident programs other than any PC Tools Deluxe programs must be terminated before continuing.

Diskfix begins doing an extensive equipment check necessary to ensure that any disk drives installed are configured correctly.

Diskfix does extensive comparing of BIOS, CMOS (on 286/386 machines), Partition Table, and all logical boot sector data before allowing any disk to be fixed.

If Diskfix finds any problem with the information in the Partition Table(s), CMOS memory, or boot sectors for any defined logical drives, an error dialog box similar to the following appears:



Most Diskfix error dialog boxes have three parts:

A brief description of the problem it found.

The symptoms of that problem, when applicable.

Any time Diskfix finds a problem it gives you the opportunity to correct it or not.

After the initial equipment check is finished, the following dialog box appears:



Answer Yes to select a drive to analyze and repair or No for the main menu.

3. If you select Yes, the following dialog box appears:

Select Drive To Analyze		
A:	1.4M	Floppy
C:	33M	1st Hard Disk
D:	21M	2nd Hard Disk
E:	9M	1st Hard Disk
Press ENTER or click mouse to continue.		

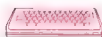
4. Select the drive that you want to analyze using the arrow keys or the mouse.



Hold down either mouse button and move the highlight bar up and down through the choices. The list scrolls if it will not fit in the display at the same time.

Release the mouse button when the drive you want to analyze is selected.

Releasing the mouse button when the cursor is outside the selection box takes you to the Diskfix main menu.



Use the up and down arrow keys to move the highlight bar up and down through the choices. The list scrolls if it will not fit in the display at the same time.

Press ENTER when the drive you want to analyze is selected.

Or you can press the drive letter.

Pressing the ESC key takes you to the Diskfix main menu.

Note: If you are analyzing a floppy disk, insert it into the drive before selecting it from the list.

While Diskfix examines the disk it displays a status box:

Status of Drive C: Analysis	
Areas tested:	Result:
J DOS Boot Sector	Ok
J Media Descriptors	Ok
J File Allocation Tables	Ok
J Directory Structure	Fixed errors
Testing Cross Linked Files	
Testing Lost Clusters	
Media Surface	
Analyzing Cluster 011544 Of 016327	

Diskfix analyzes the following:

DOS boot sector: the boot sector contains some of the code needed to boot your computer and other information needed by DOS to correctly access the file system. Diskfix verifies the boot sector is not damaged.

Media descriptors: DOS uses a special byte in the FAT (File Allocation Table) called the media descriptor to identify the type of disk. Diskfix verifies that the media descriptor in the FAT is correct for the drive being analyzed.

File Allocation Table (FAT): The FAT is a table allocated to files and subdirectories on the disk. The following tests are performed:

- Verifies that all copies of the FAT are readable (no sector read errors.) DOS always maintains two copies of the FAT. (Disks that are accessed through a device driver, such as a RAM disk, have only one FAT.) If a sector read error occurs, Diskfix tries to write the readable copy of the FAT over the unreadable copy.
- Verifies that both copies of the FAT are identical. If differences are found, Diskfix begins analyzing each FAT individually to determine which one has the fewer errors.

- Checks for invalid entries in the FAT.

When Diskfix completes this step, both FATs are identical and contain only DOS acceptable values.

Directory structures: Diskfix reads all directories found on the disk, checking each entry in every directory for any kind of damage such as illegal filenames, filesize and FAT allocation errors, and cross links.

***Note:** You will be asked to fix cross linked files, if found, before other directory problems are fixed.*

Cross linked files: If two files have been allocated the same space in the FAT, they are said to be cross linked. If Diskfix finds cross linked files, they must be fixed before any other errors will be processed. Fixing cross linked files can take several minutes.

***Note:** Diskfix examines the cross linked files and tries to determine what clusters belong to what file.*

At this point, if any other errors were found when reading the directory structure for the disk, you will be prompted to fix corrupt directory information.

Lost clusters: These are clusters marked as in use in the FAT, but are not allocated to any file in the directory structure.

If Diskfix cannot allocate lost clusters to a file, you are given the option to delete the lost clusters or convert them to files in the root directory. These files are named PCTnnnn.FIX. For example:

PCT00000.FIX

PCT00001.FIX

PCT00002.FIX

etc.

When the basic analysis is finished, Diskfix returns to the status box. You are prompted to continue.

5. Select the Continue button or press ENTER.
The following dialog box appears:

SEARCH FOR LOST DIRECTORIES
There are NO indications of missing sub directories on the selected disk. However, if you are missing directory information you should SELECT YES to look for missing sub directories.
NOTE: DISKFIX may find old sub directories that were valid from previous "formats" of the disk and try to allocate space for any files in the "found" sub directories. You may want to examine your disk from DOS before selecting YES.
Do you want to look for lost subdirectories?
<input type="button" value="NO"/> <input type="button" value="YES"/>

If you are not specifically trying to find missing subdirectories, answer No to the question.

Note: Since most format programs do not actually destroy information on a hard disk, the information in a cluster marked as unused in the FAT may contain what was once a valid subdirectory. Therefore, Diskfix may find "old" subdirectories left from previous formats of the disk and attempt to allocate space for any files it finds in those subdirectories.

Searching for lost subdirectories can take several minutes. You may press ESC to cancel the search at any time.

If Diskfix finds lost subdirectories, it places them in the root directory and names them LOSTnnnn. For example:

LOST0000

LOST0001

LOST0002

etc.

6. You are now given the option to check the media surface of the disk for defects:

Status of Drive E: Analysis	
Areas tested:	Result:
✓ DOS Boot Sector	Ok
✓ Media Descriptors	Ok
✓ File Allocation Tables	Ok
✓ Directory Structure	Ok
✓ Cross Linked Files	Ok
✓ Lost Clusters	Ok
Media Surface	

Do you want to check media surface for defects?

If you select Yes, the process begins.

Diskfix will attempt to read every cluster on the disk and if it encounters a read error, it marks the cluster in the FAT as being bad so DOS won't use it. If the cluster is allocated to a file, Diskfix will read as much of the existing information from the bad cluster as it can and write it to a non-defective cluster. Diskfix then replaces any information it could not read with dashes ("-") to help you identify the damaged part of the file.

Diskfix presents a graphic screen during the scan so you can monitor its progress:

PC Tools DISKFIX Version 1.1

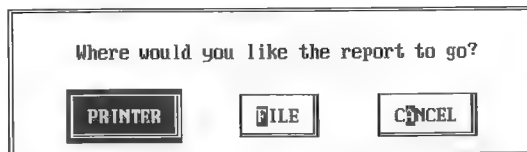
Map of Drive E: being checked for defects

Each block = 16 sectors
 READING: Sector 8456
 Cluster 1053

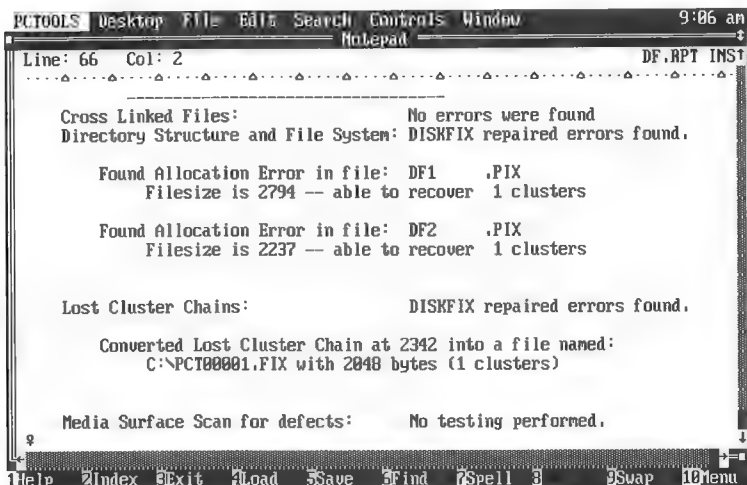
B Boot Area
• Sectors In Use
F FAT Area
• Sectors Not Used
D Root Area
X Bad sectors

Select the EXIT button to abort scanning for surface defects.

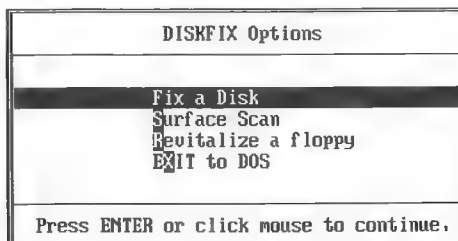
7. After the analysis is complete you are asked if you want a report of the analysis results. You may save this report to a text file on disk or send it to a printer for instant hard copy:



The report contains such information as the error(s) Diskfix found and any corrective action(s) taken. The following illustration shows a Diskfix sample report loaded into the Notepad's application of Desktop:



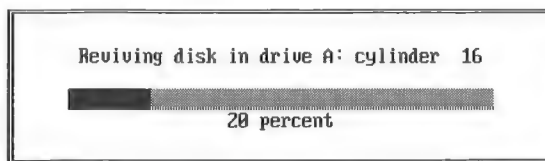
The Diskfix main menu appears next:



8. Select one of the four options presented.

- The **Fix a disk** option is identical to the above procedure.
- The **Surface Scan** option is identical to the media surface scan described above.
- **Revitalize a Floppy:** Many times the data is still on a floppy disk, even though you are having read errors. This may be caused by weak address marks that confuses DOS about the integrity of the disk. DOS then returns an error message to you. Diskfix reads the floppy disk in a different manner than DOS and can many times read data that DOS refused to read.

Diskfix removes the data from the disk track by track, stores it in your computer's memory, reformats the disk, and returns the original data. A graphic screen keeps you informed of the progress of the revitalization:



- Select the **Exit to DOS** option when you are finished using Diskfix. You are returned to the DOS command line.

21. Mirror/Rebuild



*Rebuild is intended to be used ONLY when needed to recover from a disastrous mistake! Rebuild rebuilds your hard disk's FAT (File Allocation Table) and root directory from the file created by Mirror or if Mirror was not run, from the hard disk data itself. Only run this program **immediately** after an accidental ERASE \ *.* , RECOVER \ *.* or FORMAT. Do not try rebooting your computer several times because each time you reboot, Mirror saves a new image of your system area. If that area is corrupt, Rebuild won't be successful.*

Casual use of Rebuild is dangerous. It is very important to understand that Rebuild depends upon the files written by Mirror. Rebuild restores the entire FAT and the entire root directory to the state recorded in those Mirror files. Rebuild does not restore all of the files on your hard disk. Files deleted in subdirectories should be recovered using Undelete in PC Shell. If you have not recently used Mirror, then you will definitely lose new files created since the last time you used Mirror and you may also lose some other data as well. If you have not been running Mirror, then Rebuild can be even more dangerous, as it will create a new root directory and FAT based upon data it finds on the disk. Use Rebuild only to recover from disaster!

What is Mirror?

Mirror keeps a backup copy of the File Allocation Table (FAT) and the root directory of any volume you want to protect in a special hidden file. When you erase files or format a hard disk with most versions of DOS, the data in the files is not actually erased, only the records of the files' names (in the directory) and locations (in the FAT) are lost. If you have been using Central Point Backup, then you could restore everything, but that requires more time. If that information were saved somewhere else, you could easily recover the apparently erased hard disk files.

In addition, you can run Mirror with the optional /PARTN parameter to create a copy of your hard disk partition table information so that you can recover from "Invalid drive specification" errors. Mirror /PARTN only needs to be run once, unless you change your hard disk partitions. See "Saving partition table information" later in this chapter.

Mirror is optionally installed when you run Install.

What is Rebuild?

If you accidentally format or erase your hard disk, you can use Rebuild to quickly rebuild the critical disk information from the special Mirror file. Mirror and Rebuild provide protection against accidental ERASE, RECOVER, or FORMAT of your hard disk. Rebuild will do its best to restore your hard disk to the same state as Mirror recorded, effectively undoing the ERASE or FORMAT.

What is Delete Tracking?

Mirror also optionally creates a "Delete Tracking" file (called PCTRACKR.DEL) that saves the full file name and all clusters a file occupied before it was deleted. The Undelete option of PC Shell uses this information to recover accidentally deleted files, even if the disk was fragmented. (See the "Managing Files" chapter of PC Shell for more information on undeleting files.)

The Delete Tracking option is a small resident program that is left in memory by Mirror when you install Mirror using an optional parameter (/T). There is more information about installing this parameter later in this chapter.

Destructive Versions of FORMAT Command

The DOS FORMAT program for hard disks supplied with most versions of MS DOS does not actually erase your hard disk's data – only the Root Directory, File Allocation Table, and Boot Record. Unfortunately, this is not true for the FORMAT command supplied with COMPAQ's MS-DOS up through version 3.2, AT&T's MS DOS up to version 3.1, and at least some versions of the MS DOS supplied by Burroughs.



*These versions of **FORMAT.COM** are destructive: They actually erase all the data on the hard disk so there is nothing left to recover.*

Therefore, the Mirror and Rebuild programs will not be able to recover from an accidental format on these systems. Mirror will save the information, but the **FORMAT.COM** program will erase it before Rebuild gets a chance to recover it for you.

If you have any of these versions of MS DOS, we strongly recommend that you replace the **FORMAT.COM** program with the **PCFORMAT.COM** supplied with PC Tools Deluxe. If you use this format program, you will be able to recover after an accidental format of your hard or floppy disks. When you used our Install program to install PC Tools Deluxe on your hard disk, this was done for you.

Setting Up Mirror

MIRROR.COM backs up the root directory, File Allocation Table (FAT) and boot record each time it is run, and optionally installs a

resident program that will save all deleted file information in a special Delete Tracking file. Mirror should be run at least once a day and can be included in your AUTOEXEC file. This will run the program every time you turn on your computer. Mirror saves some information in the last cluster of the disk. If this cluster is bad, Mirror can take some time to process. We recommend doing a surface scan with Diskfix before installing Mirror to insure that the media of the disk is good.

Note: Mirror is not a memory resident program, but the Delete Tracking program is. The Delete Tracking parameter is automatically added when you use Install to install Mirror. If you are having conflicts with other memory resident programs, we highly recommend that you NOT remove Mirror as you will leave yourself unprotected and unable to recover data. You can, however, remove the Delete Tracking option (the /T parameter) by editing your AUTOEXEC.BAT file.

Mirror Parameters

All parameters shown are optional:

```
MIRROR [d:] [d: ...] [/Td-nnn] [/Td-nnn ...] [/1]
[/U] [/?]
```

The "d:" parameter must be the first parameter and must be preceded by a space. The space, however, is optional for all other parameters. You may use as many parameters as you wish on the command line, and the order and case (upper or lower) of the parameter is unimportant. Any "illegal" or invalid parameters are ignored. (The brackets aren't part of the command and shouldn't be typed).

Parameter	Description
d:	The drives you wish Mirror to save the directory and FAT for. This can be as many drives (or partition volumes) as you have attached. If you don't specify a drive parameter, Mirror saves the DOS current drive information.

/1 Tells Mirror to keep only the latest directory and FAT information. Normally (when the /1 parameter is not specified), Mirror will keep two copies of your directory and FAT. Each time it is run, it will rename the old data and save the new. This approach allows you to recover data in the rare case the Mirror gets inadvertently run after a FORMAT or some other disk disaster. (This can be caused by a program that goes berserk and destroys some of the root directory and/or FAT. In this case, your computer might “mostly” work, and a subsequent run of Mirror would fill the Mirror save file with the bad information. By having two copies, you have one extra layer of insurance as you can recover data saved before the offending program was run.)

/Td-*nnn* Enables the memory-resident Delete Tracking program where “d” is the drive letter to track. Multiple drives can be specified, each with its own /Td parameter. The “-*nnn*” is optional and specifies how many deleted file entries to allow. If you don’t specify the “-*nnn*”, Mirror creates a file that will hold a number of entries based upon the type of disk being tracked. The maximum number of entries is 999. Here is a table that details for each drive type, the size of the delete tracking file and the number of deleted files each can hold:

Disk Size	File Size	Number of Entries
360 K	5K	25
720 K	9K	50
1.2 MB	14K	75
1.44 MB	14K	75
20 MB	18K	101
32 MB	36K	202
OVER 32 MB	55K	303

/U Unloads the Delete Tracking program from memory as long as there are no other memory-resident programs loaded after it. If you have installed PC Shell, Desktop and PC-Cache according to our recommendations, you will need to unload them before delete tracking can be unloaded.

`/?` Displays a help screen, showing the available Mirror parameters.

Examples:

```
Mirror
```

This command saves the directory and FAT for the DOS current drive.

```
Mirror C:
```

This saves the directory and FAT for drive C.

```
Mirror C: D: E: /TC/TD/TE
```

This saves the directory and FAT for drives C, D, and E and enables Delete Tracking for drives C, D, and E.

```
Mirror C: D: /TC-500/1
```

This saves the the directory and FAT for drive C, tracks information for 500 deleted files, and does not make a backup file of the Mirror information.

Delete Tracking Option

Mirror builds a file that contains information on all deleted files. This makes the Undelete option of PC Shell more reliable as it won't lose the first character of the file name and can fully recover fragmented files. The Delete Tracking option is a small resident program that is left in memory by Mirror. It intercepts all DOS DELETE commands and saves the file information in the special delete tracking file before the DOS DELETE command is allowed to finish. If you want to remove the Delete Tracking option, you must remove its parameter from the AUTOEXEC.BAT file and reboot.

The Delete Tracking file is always stored in the root directory. (On partitioned hard disks, the Delete Tracking file is stored in the root directory of the first partition.) If the file already exists, the Delete Tracking option will add to it – existing entries will be saved. When the file is full, entries will be overwritten beginning with the oldest entries first. Therefore, with a 32 megabyte hard disk, you would always be able to recover the last 200 deleted files (assuming they hadn't been overwritten by new files).



Don't attempt to use Delete Tracking on any drive that has been used with JOIN or SUBST. If ASSIGN is to be used, it must be done (made resident) before Mirror is run to install delete tracking.

If for any reason Delete Tracking is not able to properly save the deleted file directory information in its special file, it will beep the speaker twice. This lets you know immediately if an error has occurred.

If you wish to delete the Delete Tracking file, PCTRAK.RDEL, you can reboot your system without the /T parameter or unload Delete Tracking from memory by using the /U parameter, then you will be able to delete the file.

Compress and Delete Tracking

Since Compress works by changing file positions on your hard disk, it will invariably overwrite any deleted files. Therefore, it is very important that you Undelete any accidentally erased files BEFORE running Compress. Compress will clear out the Delete Tracking file when it is done, and any existing entries will no longer be recoverable.

Setting Up Mirror in High DOS Memory

Mirror's Delete Tracking option can also be loaded into high memory if you are using a memory manager program such as Qualitas's 386MAX or Quarterdeck's QEMM or QRAM. In order to load Delete Tracking into high memory, you must modify the Mirror command in your AUTOEXEC.BAT file.

The current Mirror line: Mirror d:/Td

(where d is the drive you wish Mirror to save the system image area for) must be broken into two parts.

If you are using QEMM or QRAM, modify your AUTOEXEC.BAT file as follows:

```
MIRROR d:
LOADHI MIRROR/Td
```

If you are using 386MAX, modify your AUTOEXEC.BAT file as follows:

```
MIRROR d:
386LOAD MIRROR/Td
```

Running Mirror

The best way to protect your data is to make sure Mirror is run as often as possible.

❑ To run Mirror from the AUTOEXEC file:

One way to make sure Mirror is run at least once a day is to put it into your AUTOEXEC file. When you used the Install program to install PC Tools Deluxe, you probably already have an AUTOEXEC file with Mirror in it. If not, and if you don't already have an AUTOEXEC file, here's a simple way to make one:

1. Type `C:` and press ENTER.
2. Type `CD \` and press ENTER.
3. Type `COPY CON: AUTOEXEC.BAT` and press ENTER.
4. Type `MIRROR C: /TC` and press ENTER.
5. Press the F6 function key and press ENTER.

Be sure you check first to make sure you don't already have an AUTOEXEC file. If you do, this will overwrite it (not add to it). If you want to add Mirror to your existing AUTOEXEC file, use Install or Notepads in PC Tools Desktop to add the Mirror line.

Note: The Delete Tracking option is a memory-resident program. If you are having conflicts with other memory resident programs, we highly recommend that you NOT remove Mirror, but you can eliminate the `/Td` parameter.

❑ To run Mirror from the DOS command line:

Type at the DOS prompt:

```
MIRROR [d:] [d: ...] [/Td-nnn] [/Td-nnn ...] [/1]
```

All parameters shown are optional (that's what the brackets mean – the brackets aren't part of the command and shouldn't be typed).

❑ To run batch files for your important data:

Since the more often you run Mirror the safer your data will be, we suggest you also create batch files for your most important programs. For example, if you use Lotus 1-2-3, you can create a batch file that when leaving 1-2-3 will run Mirror. Here's how (assuming your 1-2-3 files are in a subdirectory called "123"):

1. Type `C:` and press ENTER.
2. Type `CD\123` and press ENTER.
3. Type `COPY CON: L123.BAT` and press ENTER.
4. Type `LOTUS` and press ENTER.
5. Type `MIRROR` and press ENTER.
6. Press the F6 function key and press ENTER.

Now to start 1-2-3, type L123 instead of Lotus or 123. Mirror will be run every time you exit LOTUS 1-2-3. We suggest you create batch files like this for all your frequently run programs.

Recovering Data without Mirror

Rebuild can recover disks that haven't been protected by Mirror. However, the level of protection isn't as great because Rebuild will have to reconstruct the root directory and file allocation table from scratch rather than just restoring it from previously saved data. However, if you accidentally formatted your disk with our PC Format program, and you had been running Compress regularly, Rebuild will be able to recover all or nearly all of your hard disk data. If you used a DOS format program, you will lose all the files in your root directory, and all the first-level subdirectories will be renamed (as the original names were lost).

Rebuild will do a much better job of recovering data from an accidental format than most other programs. Many of these programs will incorrectly build the file allocation table so your hard disk will have to be re-formatted after the recovery is done. Not only will Rebuild leave your hard disk in a usable state, it will also alert you to files that it couldn't recover properly. See the section below on Rebuild for more information.

Note: *Rebuild cannot recover from accidentally formatted floppy disks unless they were formatted with our PC Format program included with your PC Tools Deluxe package. See later in this chapter for more information.*

Running Rebuild

Normally, you will never run Rebuild. In fact, you should only run it if you have accidentally formatted your hard disk, or erased too many files to recover practically using PC Tools Shell's Undelete option. Remember, running Rebuild will restore your computer's Directory and FAT to the same state they were in when you last ran Mirror, so if data has been changed since then, running it can be dangerous as this data cannot be recovered.

If you have not recently (or ever) run Mirror, then Rebuild will recreate a new root directory and file allocation table based upon the data it finds on the disk. If you accidentally formatted your disk with a DOS format command, all root-level files will be lost and all first-level subdirectories will be renamed (because the names were erased by the DOS FORMAT command). If you accidentally formatted your disk with the PC Format program then your root-level files and subdirectory names will be recovered by Rebuild.

***Note:** Before attempting to Rebuild a hard disk or other device that needs a device driver to run, you need to boot your system from another device (such as a floppy drive) that has the appropriate device driver on it and a proper CONFIG.SYS file. Otherwise, Rebuild won't be able to properly recover data from this device.*

Running Rebuild with a Mirror File

To run Rebuild, type the following:

```
REBUILD d: [J]
```

then press ENTER.

The /J parameter is optional. It performs the following function:

Parameter	Description
/J	This enables you to verify that the Mirror files have been saved and that they agree with the system information. This parameter is similar to the /TEST parameter, to be used without actually performing a Rebuild.

Where the "d:" is the hard drive you have accidentally formatted. After displaying a warning about the effects of running Rebuild when you don't need it, Rebuild will display the time and date that Mirror was last run, and ask you if you want to update the system area of your drive with this information. If you answer Y, then rebuild will proceed.

If you answer N, Rebuild will look to see if an older Mirror save file exists. If so, it will display the time and date for this save file and ask you if you want to update using this data. If you do, answer Y. If you answer N, or Rebuild could not find an older save file, it will then ask if you want to attempt to recover by scanning for subdirectories and rebuilding the directory and file allocation table based upon data found on the hard disk (see the next section "Running Rebuild without a Mirror file").

The only time you will ever want to use the older Mirror file is if you have accidentally run Mirror again after formatting your hard disk or your hard disk data was damaged before the last time you ran Mirror.

Rebuild will search the hard disk for the save files created by Mirror. It searches the disk directly, so the disk does not need to be “readable” by DOS for Rebuild to work. (Don’t run FDISK before running Rebuild as FDISK can destroy information not saved by Mirror!)

Restoration of your hard disk data is automatic. When Rebuild is done, we recommend that you reboot your system then run Diskfix.

Running Rebuild without a Mirror File

You should use these options only when you do *not* have a Mirror file or if your Mirror file is very old. Running Rebuild without a Mirror file should be used only when you need to recover from an accidental format of your hard disk. If you have had a hard disk “crash” or disk corruption of any kind, run Diskfix to repair the problem.

Note: *If data does not recover properly after a hard disk “crash,” it may be due to Rebuild expecting a formatted hard disk. Use PC Format to format the hard disk then run Rebuild again.*

If Rebuild could not find a Mirror file to recover from, or you instructed Mirror not to use it, Mirror will attempt to re-create your disk root directory and FAT based upon what it finds on the disk. This process is much slower and less reliable than using a Mirror file, but if you haven’t run Mirror, it is your only hope to recover lost data.

Type the following:

```
REBUILD d: [/P] [/L] [?] [/TEST]
```

The first parameter is the drive letter to recover.

Rebuild Parameters

Note: *Using Rebuild with the /P, /L, or /TEST parameters causes Rebuild to skip the search for a Mirror file (Rebuild assumes you don’t have one).*

The following parameters are optional and perform these functions:

Parameter	Description
/P	Causes all output to be directed to your printer so you have a hard copy of the entire Rebuild process. This is highly recommended.
/L	This tells Rebuild to list to the screen (and to the printer if the /P option is used) every file and subdirectory it finds. Normally, Rebuild will only list subdirectories and files that are fragmented and require input from you. Pressing CTRL - S will pause the list.
/?	Displays a help screen.
/TEST	This parameter lets you see how Rebuild will recreate the information without actually performing the rebuild and writing to the disk.

Examples:

```
Rebuild d: /L
```

This is the most common Rebuild parameter. It runs Rebuild and lists the files and subdirectories it finds.

```
Rebuild d: /L /P
```

This runs Rebuild, lists the files and subdirectories it finds, then prints them.

As Rebuild runs, it will tell you how many subdirectories it found, and if the /L option is selected, will show you all files in each subdirectory. Recovery is almost completely automatic, especially if you have recently run Compress.

The only time Rebuild needs input from you is when it encounters a file that appears to be fragmented. Rebuild has no way to know where the other pieces of the file are stored on the hard disk, so it will give you the option of

- Truncating the file
- Deleting the file

If you select to Truncate the file, you will in most cases recover part of your data. If the file is an important data file, and you want to try to recover the data manually, we suggest you select deleting the file, then use PC Shell's Undelete option to attempt to recover the rest of the data (by searching for it on the disk – see PC Shell Undelete option for more information).

If Rebuild doesn't query you for a specific file, it is *probably* intact. The reason we say probably is that it is possible that the file was originally fragmented (for example, in two pieces) with another file that was later deleted in between. In this case, Rebuild will have no way of knowing that the deleted fragment in the middle was not part of the recovered file. In other words, while Rebuild will do the best job possible recovering your data, if you haven't been using Mirror, the only way to know if your files are intact is to run them (programs) and look at them (data files).

When Rebuild is complete, your hard disk will be in a useable condition. By this we mean that CHKDSK should not show any errors. None of your files will be cross-linked, and except for files that did not recover properly, your hard disk should be completely useable. Again, if you formatted your hard disk with DOS version 3.x or higher FORMAT.COM, all files in the root directory will be lost. If certain programs do not run, it is probably due to fragmentation that Rebuild could not discover. In this case, your only recourse is to restore them from your original floppy disks or backups. If data files are not complete or correct, you will have to determine whether it is easier to restore from a backup that may be old, or add lost information again.

In any event, if you find yourself in this situation, we strongly recommend that you start using Mirror and Compress often so that you won't ever have to do this again.

Saving Partition Table Information

Every formatted hard disk has at least one partition, and many people choose to use multiple partitions for varied reasons such as using different operating systems, or just to break up a large disk into smaller "chunks." The information about how your hard drive is partitioned is stored as a special table on the hard disk. If this partition table information is somehow lost or corrupted, DOS cannot "recognize" your hard disk and will give you the ominous "Invalid drive specification" error whenever you try to access it. The /PARTN option of Mirror helps prevent this from happening to you by backing up the partition table information on a separate floppy disk.

Mirror without the /PARTN parameter saves the directories, the file allocation table and the boot record, which is usually enough to get your data back unless your partition table has been lost. (When you used Install to install PC Tools Deluxe on your hard disk, Mirror was put into your AUTOEXEC.BAT file where it will be run each time you turn on your computer.) By running Mirror/PARTN the first time you use Mirror, you will save this vital partition information on a floppy disk. Put this disk away in a safe place. The only times you will need to run Mirror/PARTN again is if you add new partitions or re-partition your hard drive. If your partition table is lost, you can later run Rebuild/PARTN to recover it.

Using Mirror/PARTN

Running Mirror using the /PARTN parameter saves partition table information to a file named PARTNSAV.FIL. Any time you add or change any formatting information on your hard disk (using FDISK.COM), or change logical drives (for example, if you go in and remove E) you need to rerun Mirror /PARTN to save the new partition table information.

To run Mirror to save the partition table information:

1. Type MIRROR/PARTN at the DOS command line and press ENTER.
Mirror prompts you for the drive you want to save the partition table information to. (A: is the default.)
2. Put a formatted floppy in the chosen drive and press ENTER.
The information is written to disk and saved in the PARTNSAV.FIL. When done, put the floppy disk away in a safe place.

If you want to run Mirror using any of the other parameters, you need to run Mirror again. Mirror /PARTN will only save partition table information.

Using Rebuild/PARTN

If you ever receive the DOS message "Invalid drive specification," it usually means that the problem is caused by a corrupted partition table. Running Rebuild/PARTN enables you to restore the partition table information so you can run Rebuild again to restore your computer's directory and FAT.

Rebuild checks the drive parameters that were saved in the PARTNSAV.FIL file against the actual drive parameters. They must match exactly or Rebuild will refuse to restore the information.

❑ To start Rebuild/PARTN:

1. Type `Rebuild/PARTN` at the DOS command line and press ENTER.
Rebuild prompts you for a diskette and a drive. (A: is the default.)
2. Insert the disk with the `PARTNSAV.FIL` file on it in the chosen drive, enter the the drive name, and press ENTER.
Rebuild/PARTN is executed, and you will be prompted from the screen for any further information.

Note: When `Rebuild/PARTN` is done executing, you will be prompted to put a Master DOS disk in Drive A: and press Enter to reboot. This is necessary to inform DOS that the partition table information has been changed. You should then run `Rebuild` without the `/PARTN` option to recover your directories and file allocation table. After this step, your hard disk should be intact.

REBUILD/PARTN Parameters

You can also add the following parameters when you run `Rebuild` to see the current drive's partition table information.

`REBUILD/PARTN [/L] [/P]`

Parameter	Description
-----------	-------------

<code>/L</code>	Displays the current drive's partition table. The size of the partition table is represented in megabytes and is based upon standard sized sectors (512). If the sectors on your hard drive are any other size, then the displayed size in bytes may be incorrect. The total has been determined by taking the number of sectors and multiplying by 512.
<code>/P</code>	Prints a copy of the partition table display to LPT1.

22. Command Line Undelete

You can quickly and easily undelete files by entering the following at the DOS prompt:

```
UNDELETE d:\path\filespecs[/HELP or /?] [/DT] [/DOS]
                               [/ALL] [/LIST]
```

Then press ENTER.

All parameters are optional.

Note: This same function is available from within PC Shell by using the Undelete File command.

Parameter	Description
d:	The drive you wish to undelete files from. Default: current drive.
path	The path describing the directory you want to delete files in. Default: current directory.
filespecs	Any DOS filename. DOS globals (* and ?) can be used. Default: *.*.
/HELP or /?	Displays a help screen.
/LIST	Lists the deleted files in the specified directory that can be undeleted.
/DT	Undeletes only those files tracked by Mirror's Delete Tracking, prompting for confirmation on each file. See the "Mirror/Rebuild" chapter for more information.
/DOS	Undeletes only those files tracked by DOS, even if there is a Delete Tracking file installed, prompting for confirmation on each file.

/ALL Undeletes all deleted files in the specified directory without prompting for confirmation. If there is a Delete Tracking file installed, it is used.

Use any one of the /DT, /DOS, or /ALL parameters. If none is specified, /DT is assumed. If there is no Delete Tracking file, then /DOS is used.

Examples:

UNDELETE

Undelete shows you each file it can undelete in the current directory and asks if you want to undelete it. If there is a Delete Tracking file installed, Undelete will use it, if not, it uses the DOS method.

UNDELETE \DBASE*.DBF

Undelete shows you each of the deleted database (*.DBF) files in the \DBASE directory and asks if you want to undelete them. If there is a Delete Tracking file installed, Undelete will use it to undelete files, if not, it uses the DOS method.

UNDELETE /ALL

Undeletes all deleted files in the current subdirectory, without any further input from you.

UNDELETE /LIST

All deleted files in the current subdirectory that can be undeleted will be listed.

UNDELETE *.WK?/DT

Undeletes all Lotus 1-2-3 files in the current directory using the Delete Tracking method, prompting for confirmation at each file.

23. PC Format

Your PC Tools Deluxe package includes a replacement for the DOS FORMAT.COM program called PC Format. PC Format will format hard disks and floppy disks of all densities in a manner that Rebuild can recover from. The differences between PC Format and DOS Format are as follows:

DOS Format and PC Format Differences

DOS Format (Floppy Disks)

DOS format fills all sectors with F6 hex characters on every track, overwriting anything on the disk.

PC Format (Floppy Disks)

PC Format first attempts to read the entire disk. If the disk contains nothing readable, or if track 0 and track 1 are empty, PC Format will overwrite every track. If the disk contains data, PC Format will leave the data intact, clear the File Allocation Table, and clear the first character of every file name in the root directory. The first character of the file name is stored in one of the reserved bytes, 16 bytes after the beginning file name in the directory. Using PC Format to format a floppy disk will allow Rebuild to recover even the first letter of the file names. (Rebuild will not be able to recover floppy disks unless they were formatted with PC Format.)

DOS Format (Hard Disks)

Data is not actually overwritten (with most versions of DOS), only the records of the file names in the Root directory and the location of the files (File Allocation Table) are lost.

Exception: Compaq DOS up through v.3.2, AT&T DOS up through 3.1 and at least some versions of the MS DOS supplied by Burroughs. These versions of DOS are destructive. They actually erase all data so there is nothing left to recover.

PC Format (Hard Disks)

PC Format is the same as DOS format except PC Format deletes only the first character of each file name in the root directory (and saves

this character in a reserved byte in the directory). PC Format supports only high level (logical) formatting of hard disks and standard 512 byte sector size.

Getting Started

When you install PC Tools Deluxe onto your hard disk using Install, then DOS FORMAT has already been renamed to FORMAT!.COM so that it won't be run. It's still there in case you should ever decide you need it, but by changing its name to FORMAT!, it won't be waiting around to wipe out your hard disk if you forget and type FORMAT. A new file, called FORMAT.BAT has been created that will run our PC Format program so you won't even have to remember to type PCFORMAT instead of FORMAT.

PC Format on Floppy Disks

PC Format's "help screen" can be displayed by typing PCFORMAT?. This will display all of the parameters recognized by PC Format.

We highly recommend using the proper media for the format you choose. Formatting a 720K disk as 1.44MB may produce unpredictable results.

PC Format Parameters

PC Format allows the same options for formatting floppy disks as the DOS FORMAT command:

```
PCFORMAT d [/1] [/4] [/8] [F:nnn] [/N:xx]
           [/S] [/T:yy] [/V]
```

The "d" parameter must be the first parameter and must be preceded by a space. The space, however, is optional for all other parameters. You may use as many parameters as you wish on the command line, and the order and case (upper or lower) of the parameter is unimportant. (The brackets aren't part of the command and shouldn't be typed).

Parameter	Description
-----------	-------------

d:	The letter of the drive you wish to format (e.g. "C:").
/1	Specifies a single-sided format.
/4	Formats a 360K or 180K diskette in a 1.2 MB (high-capacity) drive. This allows use of low-capacity formats in high-capacity drives. However, disks formatted with this option in a 1.2 MB drive will not read reliably in low capacity (360K) drives.

- /8** Formats a disk with 8 sectors per track instead of the normal 9 (for 360K diskettes) or 15 (for 1.2MB disks). This allows compatibility with older versions of DOS (pre 2.0) which only supported 8 sectors per track.
- /DESTROY** Formats the disk and erases it.
- /Fnnn** Formats the disk to the specified size. Valid numbers are 160, 180, 320, 360, 720, 1200, and 1440.
- /F** Specifies a full format. This means PC Format will read the data on each track, format each track, then rewrite the data. This option is slower but will clean up marginal sector IDs. This parameter also requires the /4, /8, or /Fnnn parameter.
- (Note: When using the /F option, the File Allocation Table is cleared as usual. Rebuild still needs to be run in order to recover the data on the diskette.)*
- /N:xx** Specifies the number of sectors per track to format.
- Note: The /N and /T parameters must be used together. The sectors per track cannot be specified without also specifying the numbers of tracks to format. /N and /T are used to format a disk to less than normal capacity of the drive and are not normally used.*
- /P** Prints the information on the screen to LPT1.
- /Q** Quickly reformats an already formatted disk. This parameter will erase the directory and FAT, but will not do a surface scan of the disk.
- /R** Reformats and rewrites every track. The File Allocation Table, Root Directory and data will remain intact. /R will clean up marginal sector IDs, but will make no other changes to the diskette. This parameter also requires the /4, /8, or /Fnnn parameter.
- /S** Copies the operating system files to the disk or diskette. This is necessary if you want the disk to be "bootable."
- /T:xx** Specifies the number of tracks to format.

/TEST	Simulates the format without actually writing to the disk.
/V	Gives the disk a volume label. When the format is complete, PC Format will ask you for a unique name to identify the formatted disk. PC Format accepts up to 8 characters for a volume label.

Examples:

`PCFORMAT A: /4`

Formats a 360K disk in a 1.2 MB drive (drive A).

`PCFORMAT B: /F:720`

Formats a 720K disk in a high density (1.44 MB) drive (drive B).

`PCFORMAT A: /4/R`

If you have a disk in drive A for which you receive the DOS error message "error reading/disk", use the /R parameter to recondition the disk.

Unless the /F option is selected, PC Format will READ each track of the disk or diskette to be formatted to see if it has already been formatted and to make sure that no sectors have errors. If so, the next track is checked in the same manner. If a track is encountered that has errors, PC Format will read all the data it can, re-format the track, then re-write the data. If a track has never been used, it will just be formatted. The root directory will be cleared in a manner that Rebuild can recover from, then an empty FAT will be written. The only data that is lost is the file allocation table, which Rebuild can recreate for you as long as the disk was recently Compressed (no fragmented files).

If you select the /R (REWRITE) option, PC Format will always re-format each track after it has read the original data, and will re-write it afterwards. This will clean up a disk with marginal ID fields (which is very rare) but will run much slower if you are re-formatting a previously used diskette. It will **not** clear the directory or file allocation table – existing files will be left intact.

PC Format on Hard Disks

When using PC Format to format a hard disk, the options available are the following:

```
PCFORMAT d: [/S] [/V] [/P] [/Q] [/TEST]
```

Parameter	Description
-----------	-------------

d:	The letter of the hard disk to be formatted.
/S	Copies the operation system files (BIOS, DOS, and COMMAND.COM) to the hard disk in order to make it bootable. Before using /S, boot the system with the same version of DOS that will be transferred to the hard disk.
/V	Allows the writing of a volume label on a hard disk.

The /P, /Q, and /TEST parameters explained in “PC Format for Floppy Disks” are also available on a hard disk.

Note: You should make sure all old copies of FORMAT.COM are removed from all your subdirectories. Even if you used Install to place PC Tools Deluxe on your hard disk, you still might have copies of the DOS FORMAT.COM program in other subdirectories that Install didn't know about. Use the PC Shell Locate File command to locate all occurrences of the file FORMAT.COM, then use the Delete option to remove them.

Parameter Combinations

The following table shows you which parameters may be used together. Read the options down the left column and follow the option across the top row. A bullet (•) at the intersection indicates the parameters may be used together.

	V	S	Q	P	TEST	1	4	8	N + T	F:nnn	R	F	DESTROY
V		•	•	•	•	•	•	•	•	•		•	•
S	•		•	•	•	•	•	•	•	•		•	•
Q	•	•		•	•								
P	•	•	•		•	•	•	•	•	•	•	•	•
TEST	•	•	•	•		•	•	•	•	•	•	•	•
1	•	•		•	•		•	•	•		•	•	•
4	•	•		•	•	•		•			•	•	•
8	•	•		•	•	•	•				•	•	•
N+T	•	•		•	•	•					•	•	•
F:nnn	•	•		•	•						•	•	•
R				•	•	•	•	•	•	•			
F	•	•		•	•	•	•	•	•	•			
DESTROY	•	•		•	•	•	•	•	•	•			

24. Compress

Compress is a stand-alone application supplied with PC Tools Deluxe that will optimize your hard disk's performance. Compress doesn't compress the data in a file by shrinking strings of like characters (like PC Secure), but instead arranges the files on a hard disk or diskette such that each file is contained in one contiguous area (this is usually called unfragmenting your files.)

Fragmentation is the condition where the different parts of a file are not stored together on the disk. This can occur due to the way DOS allocates space for a new file or an old, growing file. If there has been much file creation and deletion activity, then it is likely that some of the files are fragmented. There are two reasons this is undesirable. First, if portions of a file are stored in widely separated areas of the disk, then accesses to that file will be slowed. Therefore, disk intensive programs will perform better if the disk is compressed. Second, the Undelete function of PC Shell will sometimes be unable to recover files perfectly if the deleted files were fragmented and the delete tracking option of Mirror was not installed.

Compress has these main functions:

- It analyzes a disk, looking for file fragmentation
- It corrects fragmentation to improve disk access and aid in file recovery
- It checks your hard disk for unmarked errors and move files out of the way of these errors
- It moves your subdirectories to the front of the hard disk so they can be accessed faster
- It sorts all your directories simultaneously

Tips about Compress

Compress will not run on a Novell Network file server or any networked drive, and only runs on DOS (or PC Format) formatted disks.

Resident Software

Some types of resident programs, such as the DOS FASTOPEN, can be confused by the running of Compress. Since Compress moves files on the hard disk, it is highly recommended that you:

REBOOT AFTER COMPRESS HAS FINISHED!



Unless this is done, it is possible that the next program you run will destroy your hard disk format and you will lose some or all of your data! Compress will print this warning each time it is finished to remind you.

Deleted Files

Compression will destroy the last traces of any deleted files. If you want to use PC Shell to undelete any files (or the Undelete command on the DOS command line), be sure to do so *before* compressing the drive. Compress will clear the delete tracking file created by Mirror (PCTRAKCR.DEL), if it is found.

Copy Protection and File Ordering

The order of directory entries is unchanged by compression, unless sorting has been specified during Compress. But the *physical* order of disk files will be changed, depending upon the ordering option you have selected.

Files with Hidden or System attributes will not be moved by Compress. This is to make sure that any copy-protected programs you have on your disk continue to run. Many copy-protection schemes (especially on hard disks) employ the use of hidden files and subdirectories as part of the copy protection. If Compress were to move these hidden files, some copy protected programs would no longer run.

Because of this, a file might still be technically “fragmented” after Compress is run. For example, if DOS started building a file right in front of a hidden file, then extended it right behind the hidden file, Compress would not move either the hidden file or the file fragmented across it. This is done to prevent Compress from taking an extremely long time to process (this happens very rarely). Also, PC Shell’s Undelete option will be able to span the hidden file so data will be recoverable after an accidental delete.

Starting Compress

Like all PC Tools Deluxe applications, Compress has full mouse, keyboard, and color support and is very easy to learn and use.

For a detailed procedure on using the pull-down menus in Compress and the other PC Tools Deluxe applications, please read the "Getting Started" chapter. The Compress chapter assumes you are already familiar with the concepts discussed in "Getting Started."

You can start Compress two ways: from the DOS command line as a batch file or by choosing options from the pull-down menus. Both are described on the following pages.

❑ To start Compress from the DOS command line:

You can start and run Compress without any additional input by specifying the drive to compress and adding the parameters at the DOS command line.

Compress will immediately start compressing your hard disk, or you can accomplish the same thing from within Compress by selecting the appropriate menu items.

Compress Parameters

The "d:" parameter must be the first parameter and must be preceded by a space. The space, however, is optional for all other parameters. You may use as many parameters as you wish on the command line, and the order and case (upper or lower) of the parameter is unimportant. Any "illegal" or invalid parameters are ignored. (The brackets aren't part of the command and shouldn't be typed.)

```
COMPRESS [d:] [/CU or /CF or /CC]
           [/OD or /OS or /OO or /OP]
           [/SF or /ST or /SE or /SS]
           [/SD or /SA]
           [/BW] [/NM] [/350]
```

Parameter	Description
<i>d:</i>	The disk to be compressed. If not specified, Compress will assume the current drive.
/CU	These parameters allow you to run the various compress options from a batch file without additional input. The /CU parameter will unfragment your hard disk using the "Unfragment and minimum compression" option. The /CF parameter will do a full compress and /CC will do a full compress and clear all unused sectors.
/CF	
/CC	

Ordering Options

You can specify the *physical* file ordering from the command line when you start Compress or run it from a batch file.

If the following options are included without including /CF, /CU, or /CC, compression will not begin:

Parameter	Description
/OS	Standard ordering
/OD	DOS ordering (subdirectories with files)
/OO	DOS ordering (subdirectories first)
/OP	Programs (.EXE and .COM) files first

Sort Options

You can also specify a desired directory sort option when starting Compress or running it from a batch file. If the following options are included without including /CF, /CU, or /CC, compression will not begin:

Parameter	Description
/SF	Sort by file name
/ST	Sort by file time
/SE	Sort by file extension
/SS	Sort by file size

In addition, you can specify one of the following command-line parameters to specify the sort order:

Parameter	Description
-----------	-------------

/SA	Ascending sort
/SD	Descending sort

Additional Parameters

The following parameters can be appended to either method of starting Compress:

Parameter	Description
-----------	-------------

/NM	Suppresses the running of Mirror after Compress has been completed. We highly recommend that Mirror always be run after Compress. We suggest that you use the /NM option ONLY if you will be running Mirror yourself immediately following the Compress.
/BW	Suppresses colors on the screen while Compress is running. If you have difficulty reading the color display on your monitor, /BW can improve its appearance. /BW is ignored in monochrome systems.
/350	Displays in 350 line resolution if you have a VGA display. This makes the background screen in Compress continuous, but it may have the effect of reducing the size of the screen on some VGA adapters. This parameter also works with PC Secure.
PCTV=/BW or /LCD	Install sets an environment variable so that Compress uses the appropriate colors on black and white or LCD systems. Once set, all other PC Tools Deluxe programs will use this variable. Install places the variable in your AUTOEXEC.BAT file when you install, or you can type it at the DOS command line.

Examples:

```
COMPRESS d:/OD /SE /SA
```

This example translates to the following: place the files on the hard disk in DOS order and sort the files by extension and do so in an ascending sort. This example sets these options and displays the Compress main screen for you to start Compress.

```
COMPRESS d:/CF /OD /SE /SA
```

This example immediately starts compressing your hard disk with full compression then places the files on the hard disk in DOS order and sorts the files by extension in an ascending sort.

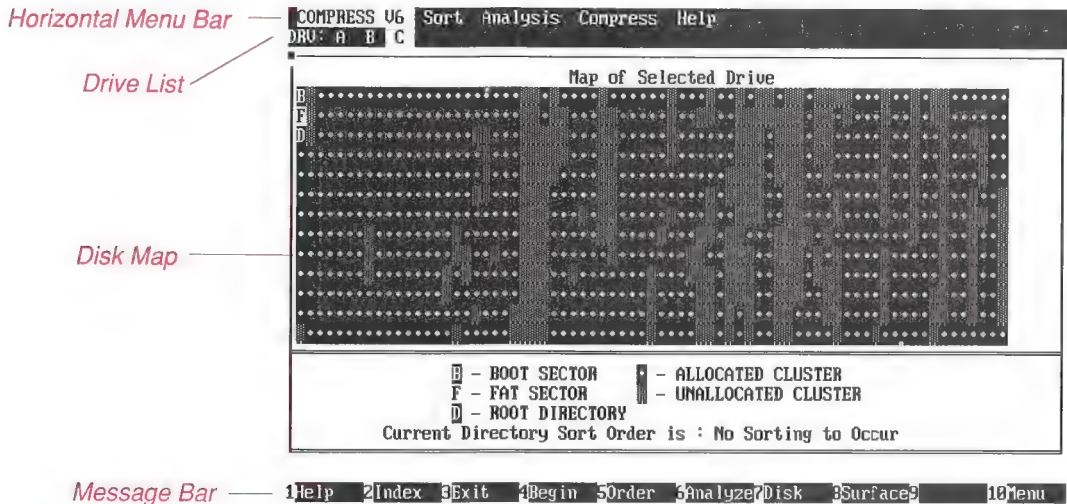
☐ To start Compress using the pull-down menus:

- Type the following at the DOS prompt and select options from the Compress pull-down menus:

```
COMPRESS
```

The Compress Screen

When you start Compress, you will see a screen that looks like this: (except it will show the map for your drive)



Clockwise, the screen contains the following parts:

Horizontal Menu Bar: contains the names of pull-down menus.

Drive List: is the line directly beneath the menu bar. It lists all the available drives on your system. The current drive is highlighted.

Disk Map: contains a logical representation of all the files on your disk. Different colors and patterned blocks are used to represent the various types of files on your disk, free space, and bad blocks. The more "fragmented" the display looks, the more fragmented your files and free space are. As the Compress program runs, you will see this display dynamically change as your files are reordered.

Message Bar: is located at the bottom of the screen. It provides additional information, keystroke options, and help suggestions. This line will change constantly to reflect where you are in the Compress program. When function keys appear on the bottom line, the associated commands can be invoked by pressing the function key or positioning the mouse cursor on any portion of the command and clicking the mouse. The commands have been abbreviated in order to fit on the bottom line. For example, to begin Compress just press F4 or click anyplace on "Begin" with the mouse; this will begin

disk compression. The commands disappear when the bottom line contains help messages.

Note: In order for an entire hard disk to be mapped on your screen, the dimensions have been scaled down so that you see a proportional representation (depending on the size and number of sectors on the disk) of your disk. The surface analysis map, on the other hand, represents your hard disk so that 1 square equals 1 cluster. What this means is that when you see the initial disk map, you won't notice if any clusters are bad if there are fewer bad clusters than the number that comprises 1 square. In order to see where any bad clusters are, you need to choose the Surface Analysis command from the Analysis menu.

Selecting the Disk to Compress

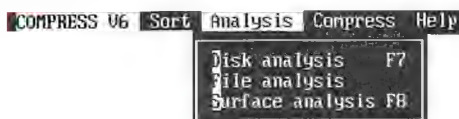


Before you can start any of the Compress options, you need to specify which drive to use.

- Select the drive from the drive list.
Your choice will highlight to show it is selected.
- Type CTRL - drive letter.
For example, press CTRL-C to select drive C.
- Click the mouse cursor on the drive letter you wish to compress.

Analyzing the Disk

Using the commands on the Analysis pull-down menu can help you quickly determine if there are fragmented files on your disk or any undetected bad clusters. If undetected bad clusters are found, Compress marks them to prevent future use. If there is any data in the bad clusters, Compress attempts to move it to a safe place on the disk.



❑ To analyze the disk:

The Disk Analysis command allows you to display allocation information for the selected disk drive.

- Choose Disk Analysis from the pull-down menu, or press F7, or click on "Disk" on the Message Bar.

The command will be executed immediately. After a few moments, you will see a screen similar to the following:

```

Disk(ette) Allocation Analysis

File Allocation Tables match

8441 allocated clusters
1964 unallocated clusters
0 total bad clusters
940 total file chains
50 fragmented file chains
1 percent file fragmentation factor
82 non-contiguous free space areas
0 cross linked file chains
0 unattached file clusters
0 bad clusters within file chains
Fragmentation Encountered
Compress Recommended

EXIT

```

This screen displays the technical information shown below:

- allocated clusters (disk space in use)
- unallocated clusters (free disk space)
- bad clusters (already marked as bad)
- fragmented file chains (fragmented files)
- file chains (files and subdirectories)
- the percentage of file fragmentation
- non-contiguous free space areas
- cross-linked chain files
- unattached file clusters
- bad clusters within file chains

The following examples show how this information can be useful.

The number of Fragmented File Chains indicates how many files and subdirectories are fragmented. The next line in the display shows this as a percentage of all the files on the disk. The longer it has been since you have run Compress, the higher this number is likely to be. If it is zero, there are no fragmented files.

The number of Non-contiguous Free Space Areas indicates how many pieces the unallocated space is divided into. It is desirable that this be kept small because the next time a file is created (or an existing file grows) DOS will allocate these pieces to the file. If there are many small pieces, instead of one large piece, the new or enlarged file will likely be highly fragmented. This will make access to it slower.

Important: If the last three items displayed on the screen have numbers in front of them, this indicates problems with your directories that Diskfix can correct. You will need to run Diskfix to correct these problems before you can compress your hard drive.

❑ To check for file fragmentation:

The File Analysis command displays information on the possible fragmentation of individual files. If Disk Analysis shows fragmented files, then File Analysis indicates which ones they are.

- Choose File Analysis from the Analysis menu.
The command executes immediately and the following screen appears:

File Allocation Analysis									
Path=C:\									
Name	Clusters	Areas	Pct	Name	Clusters	Areas	Pct		
IO.SYS	11	1	0%	MIRROR.BAK	19	1	0%		
MSDOS.SYS	15	1	0%	MIRROR.FIL	19	1	0%		
COMMAND.COM	13	1	0%	MOUSE.SYS	8	1	0%		
HARD_DISK	<VOL>			PCTACKR.DEL	18	1	0%		
DOS	<DIR>	1	1	PRUNZIP.EXE	9	1	0%		
PCB	<DIR>	1	1	PKZIP.EXE	14	1	0%		
AUTOEXEC.TEM	1	1	0%	REMM.SYS	8	1	0%		
AUTOEXEC.BAK	1	1	0%	REMM41.SYS	8	1	0%		
FILE0000._DD	5	1	0%	WORK.BAK	1	1	0%		
AT86.COM	38	1	0%	PCT00000.FIX	11	1	0%		
AUTOEXEC.BAT	1	1	0%	BUSINESS	<DIR>	1	1	0%	
CONFIG.SYS	1	1	0%	COPYII	<DIR>	1	1	0%	
CONFIG.BAK	1	1	0%	DEMO	<DIR>	1	1	0%	
<div> <div>PREV DIR</div> <div>NEXT DIR</div> <div>FIRST DIR</div> <div>LAST DIR</div> <div>EXIT</div> </div>									

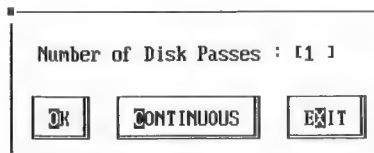
Each file is displayed along with the total number of clusters it occupies. The screen also shows the number of pieces the file is broken into (an unfragmented file has a "1") and the percentage of fragmentation for that file. Ordinarily, you won't need to run this option. If the Disk Analysis command shows there are fragmented files, you can proceed directly to compressing the disk.

❑ To check for media errors:

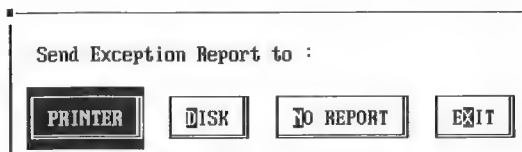
The Surface Analysis command does a complete check of all clusters on your hard disk. It is very useful to catch and mark marginal clusters as bad so that DOS will not attempt to store your data in areas that may turn up bad later. Normally, DOS will make several attempts before it even alerts you that a sector is bad (via the familiar "Abort, Retry, Ignore" message). The Surface analysis command will read each sector several times. If an error is found, it will mark the cluster that contains that sector as bad. If this cluster is already allocated to a file, it will attempt to move the file's data to a safe place first. Although Compress will move data from a bad media area, there is no way of knowing whether the data has been corrupted.

It is a good idea to use the Surface Analysis command periodically as it can find bad sectors before DOS does and before you lose any data. Due to the complexity of the analysis it does, it can take some time to run. For example, one pass on a 20 MB hard disk takes approximately 10 minutes. This is a great option to start overnight and let run until you come back to your computer in the morning.

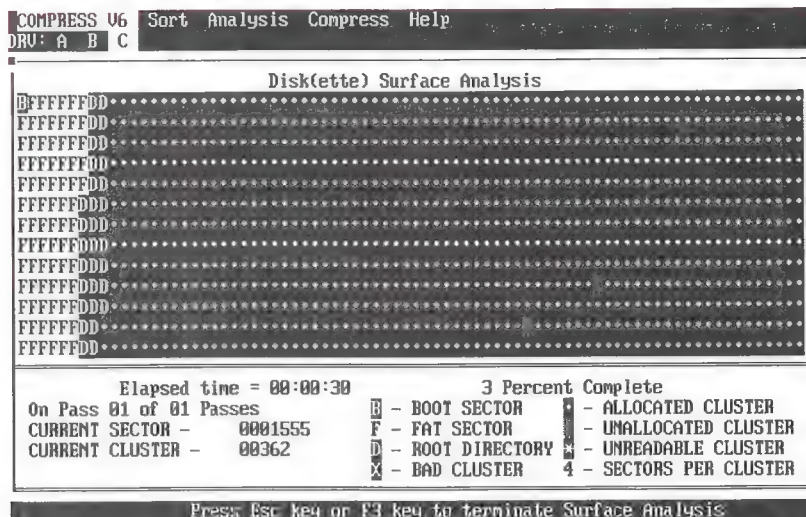
- Choose Surface Analysis from the Analysis menu, or press F8, or click on "Surface" on the Message Bar. You will be given the option to run a set number of passes or to have the surface scan run until the Esc key is pressed.



Compress can generate a report which can be optionally sent to a printer or to a disk file on a drive other than the one being scanned.



After scanning your disk, a screen similar to this appears:



Compressing the Disk

The Compress menu provides the necessary commands for compressing your disk:

The following section describes how to compress your disk using the commands on the Compress menu. Below is a brief overview:

1. Select one of the compressions techniques.
A checkmark will appear to the left of the command to show it has been selected.
2. Select one of the file ordering options.
3. Choose the Analyze Disk Organization command.
4. Choose the Print Report command if you want a report summarizing the compress after it is finished.
5. Start Compress.

The following sections explain each of these commands in order. We recommend you read each option before making your selections.

Select Compress Technique

☐ To select a compress technique:

1. Choose the Compress menu:



2. Select one of the following three compression options:

Unfragment only: This option does exactly what it says. It will only unfragment your files. What it does not do is to move all the free space to the back of your disk. This means that while all your current files are unfragmented, the next one to be created might be highly fragmented as it could end up getting all the little free spaces scattered about your disk. We recommend that you select this option only if you are in a hurry as it runs slightly faster (depending upon the ordering options described below). If you use this option, use it often, so your new files don't stay fragmented for long.

Full Compression: A full compression unfragments all your files and moves all your free space to the back of your disk.

Full compression with Clear: This option does everything that a Full Compression does, plus it erases all data in any unused sectors. This is a great option to use if you want to clear any data from old files that you have already deleted. (Deleting doesn't actually get rid of the data in a file - it only erases the file's name from the disk directory.) It also clears any old subdirectories that have been deleted, which can be helpful if you ever need to recover a damaged disk that you haven't run Mirror on previously.


Select Ordering Options

The ordering options on the Compress menu give you a great deal of flexibility for arranging your hard disk.

❑ To select a file ordering option:

1. Select Ordering Options from the Compress menu, or press F5, or click on "Order" on the Message Bar.

Notice that when you select Ordering Options, a pop-up menu appears beside the first one.

Note: You can always tell when a menu option will ask for additional information. If it requires more information, you will see a "..." after the command. This means that a dialog box will appear, asking you for additional information. If you see a  at the end of the menu item, a pop-up menu appears, as in this example.

2. Select one of the following file ordering options:

Standard: puts all your subdirectories at the front of the disk, followed by all files in any physical order. This selection will allow Compress to move files wherever it wants to unfragment your hard disk. Compress will generally run much faster if you choose this option, and we recommend that you use it.

.COM & .EXE first: moves all your .EXE and .COM files to the front of the disk. If you find that you don't change your programs much, this option will move them to the front of the drive where they can be permanently stored. The benefit is that when Compress is run in the future, it may take less time if you haven't added or updated any program files. If you have, however, it will probably run slower.

DOS (subs first): moves all your subdirectories to the front of the disk, followed by all files arranged by directory. This option maximizes hard disk performance since it positions data and program files next to one another.

DOS (subs w/files): places each subdirectory just before its files. This method may be more efficient if you normally create and delete entire directories rather than files.

Analyze Disk Organization

The Analyze Disk Organization command checks your currently selected drive for how well organized it is and tells you whether or not you need to continue with compression.

Note: Select one of the compression options before choosing the Analyze Disk Organization command.

☐ To analyze disk organization:

- Choose Analyze Disk Organization from the Compress menu, or press F6, or click on "Analyze" on the Message Bar.

Your screen will show a message to let you know if compression is needed, depending upon the compression method you selected.



Disk(ette) Compression recommended
for optimum performance.

EXIT

Print Report

This command generates a summary of the compress after it is finished. It includes the time it took to perform the compress, the options selected, and the number of used, unused, and bad clusters on the disk. **You must select this command before starting the compress.** If you choose to send the report to disk, it will be written to the file COMPRESS.PRT.

❑ To print a report:

1. Choose Print Report from the Compress menu.
The following dialog box appears:



At the completion of Compress, print a report
to the printer or disk. Cancel means no report.

PRINTER

DISK

CANCEL

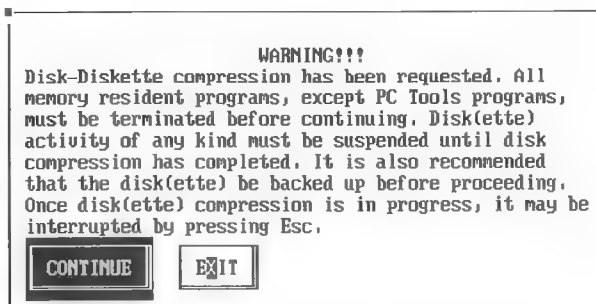
2. Select one of the options.

Begin Compression

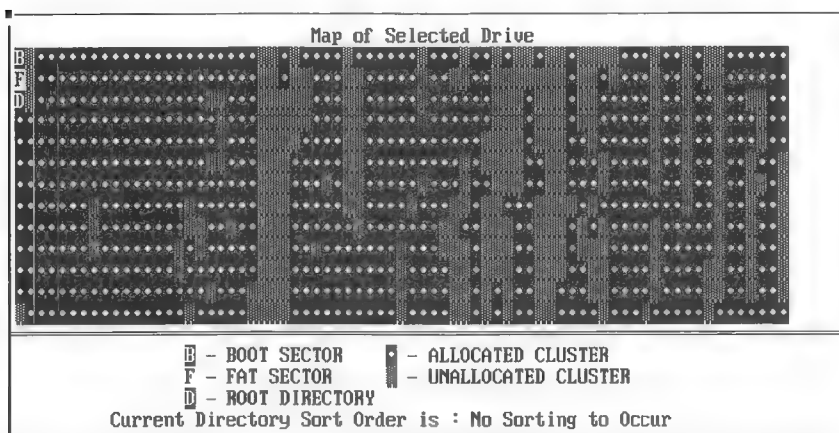
Note: If you want to have a report sent to the printer or disk, choose Print Report before you compress your disk. The report is then automatically sent to either printer or disk after Compress is done.

❑ To start compression:

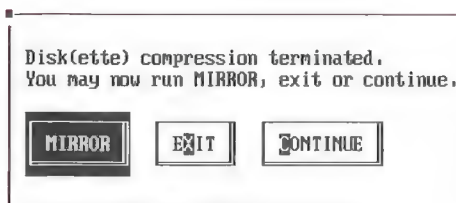
1. Choose Begin Compress from the Compress pull-down menu, or press F4, or click on "Begin" on the Message Bar
A warning screen appears:



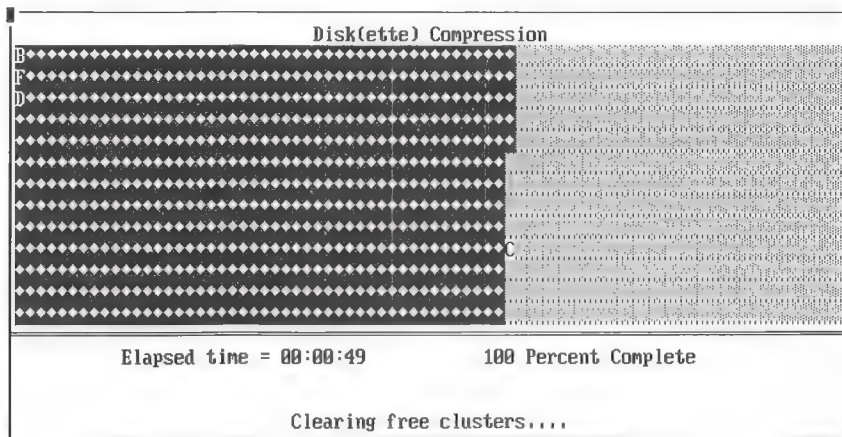
2. Select Continue to start Compress. A dialog box appears indicating that Compress is sorting directories and preparing for disk optimization. A progress bar in the dialog box indicates the status. Then you will see the Disk Map and Message bar area of the screen change dynamically as Compress progresses.



When you press the **ESC** key or click on the close box during the compression process to terminate Compress, the following dialog box appears, giving you the option to exit Compress or to continue the compression process where it left off.



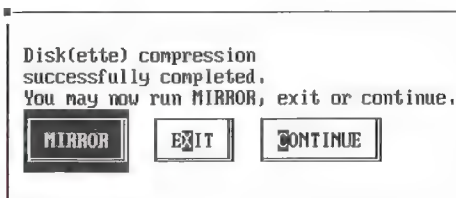
After Compress has finished, your screen should look similar to this:



Note: After compression, all your files (represented by the diamond characters) have been moved to the left side of the screen. All the free space (represented by the lighter grey area) is on the right. The left part of the screen is the front part of your hard disk. If you select the Unfragment only command, you may see some free space left in between your files as this option won't necessarily pack all your files together. It just makes sure they are not fragmented.

Running Mirror after Compress

After you have finished a disk compress, the Compress program will ask you if you wish to run Mirror (see the Mirror/Rebuild chapter for more information.)

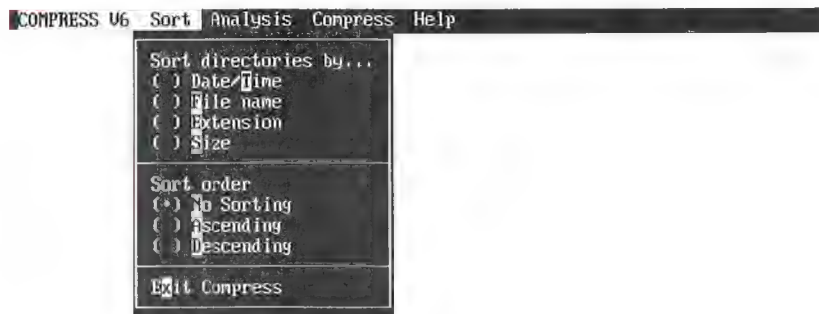


If you have just compressed a hard disk, you should always select **Yes**. Compress has moved your files and directories around, and the Mirror file will no longer be current. It will not reflect the actual status of your hard disk's data.

Compress will look for the Mirror program in the current subdirectory and in the subdirectory the Compress program was run from.

Sorting Options

The PC Shell program has commands that will sort any disk directory. However, you may find that you would like all your directories sorted and this can be tedious using PC Shell. With Compress, you have the option of sorting all directories while compressing files. This option does not perform the actual sorting – it defines the type of sort that will be performed during the compression.



From the Sort menu, you sort by:

- Date/Time
- File name
- File extension
- Size

You can also specify the directory and file sort order: ascending, descending, or no order.

Note: If you select any option other than file name, the directories will be sub-sorted by name. For example, if you select to sort by file extension, then all files with a common extension will be sorted by name, within that extension.

25. PC-Cache

PC-Cache is a program designed to speed up hard disk access by storing the most frequently used information in your computer's memory. It speeds up programs by reducing the number of times the computer has to wait for the disk when reading and writing commonly used information.



PC-Cache must be installed after Mirror but before any other memory-resident programs (PC Shell, Desktop, BACKTALK.EXE, etc) to prevent loss of data. When you installed your PC Tools utilities programs with the installation program, they were installed in the correct order. If you modify your AUTOEXEC.BAT file, make sure you install PC Tools programs in the correct order. Also, do not use more than one caching program at a time! See Appendix A: Memory Resident Programs for more information about loading memory-resident programs.

PC-Cache supports standard memory (up to 640K), Expanded memory (Lotus/Intel/Microsoft EMS), and Extended memory (AT style memory above 1024K). When a cache is created in standard, expanded or extended memory, a table is created which will use a small amount of standard memory. The amount of standard memory used is determined by the size of the cache.

PC Cache will also load into a block of high memory as small as 24K created by such programs as QEMM, QRAM, and 386MAX.

PC-Cache supports up to 2 hard disk devices, but is not designed to cache floppy drives.

PC-Cache's help screen can be displayed by typing PC-CACHE/? This will display all of the parameters recognized by PC-Cache.

To install PC-Cache, type the following (or insert it in your AUTOEXEC.BAT file). If you chose to install PC-Cache during the PC Tools Deluxe installation, this has already been done for you:

```
PC-CACHE      [/SIZE=nnnK] or [/SIZEXP=nnnK] or  
              [/SIZEXT=nnnK]
```

PC-Cache Parameters

The following parameters can be used for optimizing PC-Cache for your system. It is not necessary to include a space after PC-CACHE and before the switch, and the brackets are not part of the syntax and should not be typed. The order and case (upper or lower) of the parameter is unimportant. Any “illegal” or invalid parameters are ignored.

Parameters	Description
/Id	Specifies a drive to ignore caching, where <i>d</i> is a partition or logical drive letter like C, D, or E. PC-Cache will normally cache all drives it can find. On a partitioned hard disk (one with multiple drive letters), you must cache all partitions or none. Ignoring one partition will not disable caching unless all other partitions (drives) are also ignored.
/SIZE=nnnk	The amount of standard memory (in 1K increments) to allocate to PC-Cache. If no size is given, PC-Cache will default to 64K. The maximum size depends upon how much memory is available.
/SIZEXP=nnnnk	The amount of expanded memory to allocate to PC-Cache. The default is 256K. The smallest allowable cache is 10K.
/SIZEXT=nnnnk	The amount of extended memory to allocate to PC-Cache. Only available on 286 and 386 processors. The default is 256K. PC-Cache determines the best method to access extended memory by checking your computer's processor type and other parameters. This parameter is seldom necessary and should be used only to force PC-Cache to use the BIOS method of extended memory access. Note: Only one size option is allowed: You cannot mix standard, expanded, and extended memory. The minimum size that can be specified is 4K.

/EXTSTART= nnnnK	Specifies the start location of the cache buffer in extended memory. EXTSTART must be greater than 1 MB (1024K). This option is seldom necessary and tells PC-Cache what address in extended memory to load above. This option may be required when using other programs that install in extended memory. PC-Cache is compatible with VDISK and RAMDRIVE.
/FLUSH	Flushes the cache; empties the contents of the cache.
/INFO	Displays a table of available drives and their sizes, and the type and size of the cache installed. This parameter needs to be used before you install PC-Cache. If PC-Cache is already installed, you must unload it in order to run PC-Cache with this parameter: PC-CACHE /UNLOAD, then PC-CACHE /INFO.
/MAX=nn	Limits the number of sectors that can be saved in the cache from a single read request. When a large program or data file is initially read into memory, it may consume all cache buffers. Selecting a low number (for example, 8-16) optimizes caching for large applications. The default is 4.
/MEASURES	<p>Displays the following measurements of PC-Cache's performance:</p> <p>Logical transfers: The number of data transfers that have occurred between the cache and the current application.</p> <p>Physical transfers: The number of data transfers that have occurred between the disk and the current application.</p> <p>Transfers saved: The number of physical transfers saved by PC-Cache. (This is the difference between the logical and the physical transfers.)</p>

Percentage saved: The percentage of transfers saved by PC-Cache.

- /NOBATCH** Used only when caching in extended memory. PC-Cache normally transfers 8 sectors of data at a time. The /NOBATCH parameter reduces that number to 1. When used in extended memory, PC-Cache uses the ROM BIOS to transfer the sectors, disabling all interrupts. The /NOBATCH parameter reduces the amount of time the interrupts are disabled between transferring sectors. This parameter is recommended when running communications software.
- /PARAM** Displays the parameters currently in effect.
- /PARAM*** Displays PC-Cache setup information such as whether or not you have EEMS memory, the number of data sectors transferred at a time, how memory is allocated, the size and type (standard, expanded, extended) of the cache, etc.
- /PAUSE** If you experience problems after installing PC-Cache, such as an unrecognizable directory when the DOS DIR command is used, or no files listed in a directory that should contain some, reinstall PC-Cache with the /PAUSE parameter and watch the screen for warning messages. If they appear, follow the directions on the screen.
- /QUIET** Disables the sign-on display. Usually /QUIET is used in batch files after other parameters have been established.
- /UNLOAD** Unloads the cache from memory as long as no other TSRs have been loaded after it.

/WRITE=[ON] Controls how disk write operations are sent to the disk. PC-Cache will combine consecutive disk write operations then write them all at once to speed up disk writing. Setting this parameter to **OFF** disables delayed writing. The default is **WRITE=ON**. Use this parameter with caution because it delays write operations to the disk and can result in loss of data if the power is turned off before information is written to the disk. PC-Cache always writes all delayed data to disk when DOS is idle or while a program is waiting for keystrokes.

/? Displays the Help screen listing all of the PC-Cache parameters.

When Install was used to install PC-Cache, any of the parameters above can be added or excluded by editing your AUTOEXEC.BAT file with PC Tools Desktop Notepads.

You can verify that PC-Cache has been installed by running the MI.COM program. (This is explained in the "System Configuration" chapter in PC Shell.)

Examples

Some PC-Cache parameters are used when loading; others can be added once PC-Cache has been installed. **/?** can be used at any time.

The following parameters are used *only* after PC-Cache has been installed: **/FLUSH**, **/UNLOAD**, **/MEASURES**, **/PARAM**, and **/PARAM***. All others are used in any combination when loading.

The following are examples to show you how these parameters work.

```
PC-CACHE /SIZE=64K
```

This creates a cache of 64K in conventional memory.

```
PC-CACHE /SIZEXP=128K
```

This creates a cache of 128K in expanded memory.

```
PC-CACHE /SIZEXT=128K
```

This creates a cache of 128K in extended memory.

PC-CACHE

This installs PC-Cache according to the defaults.

```
PC-CACHE/SIZEXP=512/MAX=64/WRITE=ON/QUIET
```

This creates a cache of 512K in expanded memory, reads a maximum of 64 sectors ahead, delays writing to disk, and does not display a sign-on screen.

Note: *PC-Cache is completely compatible with the PC Tools Deluxe Compress program. It is safe to have PC-Cache resident while running Compress. (This is not true with most other caching programs.)*

Setting Parameters for Performance

The following suggestion can be used to customize PC-Cache for best performance:

Select a size for the cache and type of memory you have. If there is any doubt about your type of memory and its size, use the MI program (type MI at the DOS prompt) to see what is available. Generally the bigger the cache, the faster your system will run.

Tips for Selecting PC-Cache Size

Allocate as much memory as possible depending on the memory demands of other applications and how much memory you have available. The following tips may help:

Some program files need more intensive memory use than others. Adjust the cache size depending upon your typical usage:

For example, Lotus 1-2-3 uses its own RAM space. A large cache is not effective, so most RAM should be left for Lotus. For 1.5 MB of memory, try a cache of 256K.

Word processor programs frequently access their files on the drive. Select a cache size big enough to store a typical document then allow additional memory for the program "overhead." For example, you probably need 256K to 512K for most documents.

Database programs also access their files on the drive frequently, but database files tend to be large. Determine the size of your largest database file then add an additional 30K to 60K for program "overhead."

Refer to Appendix B for additional troubleshooting tips.

PC-Cache Default Configuration

If you don't want to set any of the optional parameters, PC-Cache's defaults are set to increase the speed of your computer operations, with the maximum amount of safety.

If no size parameter is used, PC-Cache will install as follows:

256K in extended memory, if available

or

256K in expanded memory, if available

or

64K in conventional memory

If PC-Cache Doesn't Seem to be Minimizing Disk Access

PC-Cache stores information about the FAT and directories as well as the programs being run. Therefore, even when a program is loaded that is smaller than the cache, some disk access may still be necessary.

PC-Cache and Bernoulli Boxes

This version of PC-Cache does not cache Bernoulli Boxes.

Part 4

Securing your Data

PC Secure is a fast and powerful tool for keeping your proprietary data and programs safe and secure. It can encrypt, compress, and hide sensitive files on your disk.

Encryption is easy with PC Secure, and its compression feature gives you more effective use of space on your disk, as well as greater security.

This part describes the PC Secure program.

26. PC Secure

PC Secure uses the DES (Data Encryption Standard) encryption system, which has the following powerful features:

- DES thoroughly randomizes the data. The purpose of encryption is to remove the order in your data and make it appear to be random bits. By a variety of statistical tests, DES is one of the best pseudo-random number generators known.
- DES is virtually impossible to decrypt without the key.
- Even if you know some or all of the text, you cannot determine the key.

Note: Due to U.S.A. federal regulations, PC Secure is shipped out of the U.S.A. with the encryption/decryption option disabled. The compression/expansion option is active, however, and this provides a moderate degree of security by itself. The Encrypt and Decrypt commands from the File menu are renamed to Compress and Decompress, and the encryption options are removed from the Options menu. The U.S.A. and non-U.S.A. versions of PC Secure are not compatible. You will not be able to decrypt a file with the U.S.A version that was compressed with the non-U.S.A. version and vice-versa.



Operated improperly, PC Secure changes from a data security program to the electronic equivalent of a paper shredder. Loss of your password will cause irretrievable loss of your data. Please take a few moments to read this chapter and familiarize yourself with PC Secure operating procedures.

Important: Files encrypted with a previous version of PC Secure may be decrypted with Version 6. However, files encrypted with PC Secure Version 6 can only be decrypted with Version 6.

File Compatibility

Data Files: PC Secure can encrypt all kinds of data files. PC Secure's compression algorithm compresses nearly any file with the exception of pre-compressed files made by such programs as ARC, which will usually become larger.

Applications: PC Secure can encrypt and decrypt nearly any application. Needless to say, you should NOT encrypt PC Secure itself.

You may encrypt a file multiple times, but you must decrypt the same number of times in reverse order.

Copy protection: There is one class of file which PC Secure cannot encrypt and decrypt transparently: files with copy protection. Copy protection works by hiding extra information in some out-of-the way areas of the original disk. Unless that extra information is present, the application won't run. You can encrypt and decrypt a copy-protected file, but since PC Secure doesn't read this hidden information, the decrypted file will not run.

Password protection for applications: PC Secure can be used to place other applications under password control. Encrypt the applications you want to limit access to. For example, a payroll program, and issue the key only to authorized users.

PC Secure files: Encrypted files are stored in normal DOS format and can be copied, backed up and restored, and transmitted via modem. You can run a hard disk defragmenting program, such as Compress, safely on PC Secure files.

Networks: PC Secure is compatible with standard DOS networks, such as Novell. It's safe to place encrypted files on a network. However, a good rule of thumb is never to place your decrypted files on a file server. Instead, always copy the encrypted file to a private directory or local disk first, then decrypt it.

Starting PC Secure

Like all PC Tools applications, PC Secure has full mouse, keyboard, and color support. For details about using the mouse and the keyboard please read the "Getting Started" chapter.

PC Secure does two things: it encrypts and decrypts files. These files are locked and unlocked with keys, which are words or numbers that you enter when PC Secure prompts you.

The procedures in this section show you how to do the following:

- Start PC Secure (menu method)
- Enter a master password (key)
- Run PC Secure from the command line

❑ To start PC Secure:

1. Start the program by typing the following at the DOS prompt:

PCSECURE

Notice there is no space between "PC" and "SECURE". Even though it is referred to as "PC Secure" throughout this chapter, DOS does not allow a space in the file name, so remember to leave it out when you run the program. Also, DOS does not care if you use upper or lower case letters to type a program name.

If you have a VGA display, you can optionally display in 350 line resolution. This will make the background screen and the scroll bars in PC Secure continuous. It may have the effect of reducing the size of the screen on some VGA adapters. This parameter is entered on the command line as follows:

PCSECURE/350

If you have the need for file security according to the U.S. government's Department of Defense (DOD) standards, then you can start PC Secure using the /G parameter. This parameter works in conjunction with the Delete Original File option. Any file encrypted during a session using this parameter destroys the original file according to DOD standards, which means the file is overwritten seven times then verified to make sure it will not be recovered. This process takes longer than the usual encryption process. Enter the /G parameter on the command line as follows:

PCSECURE/G

PC Setup sets an environment variable so that PC Secure uses the appropriate colors on black and white or LCD systems. Once set, all other PC Tools Deluxe programs will use this variable. PC Setup places the variable in your AUTOEXEC.BAT file, or you can type it at the DOS prompt:

PCSECURE/PCTV=BW

or

PCSECURE/PCTV=LCD

2. Press ENTER.

Note: The /G parameter is available in the U.S.A. version of PC Tools Deluxe only.

❑ To enter a master key:

When you use PC Secure for the first time, it prompts you for a master key. This key enables you to decrypt any file you make in the future. (See note below.) This means if the specific password for an encrypted file has been lost or forgotten, the master key can be used to decrypt the file.

Note: The master key will work on any file EXCEPT those encrypted using Expert Mode, or those files encrypted from the DOS command line.

If you want to think about it a bit before you start PC Secure, reading the section on “Managing Your Keys” can give you some ideas for a good master key.

Key Input	
Please enter the password :	<input type="password"/>

1. Type your master key.

Press ENTER.

The master key is similar to having another house key; you need to remember where you put it, but you don't want anyone else to know about it. This is a good time to record the master key on a piece of paper for future reference.

You can use alphanumeric or hexadecimal numbers for a key:

- An alphanumeric key can have 5 to 32 alphabetic or numeric characters and is case-sensitive. (PC Secure knows the difference between upper and lower case letters.) When you type an alphanumeric key, PC Secure displays an asterisk (*) instead of the character.
- Pressing F9 prompts you for a hex key. A hexadecimal key must always be 16 characters. When you type a hex key, PC Secure displays what you type. See the section on “Managing Your Keys” for a detailed explanation of hexadecimal key use.

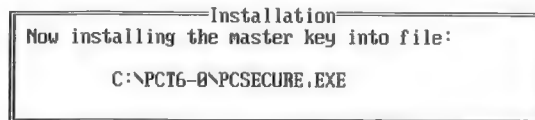
Key Input	
Please verify the password :	<input type="password"/>

Another dialog box appears asking for verification of your master key.

2. Type your password again and press ENTER.

Note: If you used a hex key, you will not get the second password validation box.

After you have typed the master key a second time, a dialog box appears informing you that your master key is being installed.



The PC Secure Screen

Next, you see the PC Secure screen.

Horizontal Menu Bar



Message Bar

From top to bottom, the screen contains the following parts:

Horizontal Menu Bar: contains the names of pull-down menus, the on-line help (F1) for quick answers and guidelines, and displays the current time.

Message Bar: is located at the bottom of the screen. It is used to provide additional information, keystroke options, and help

suggestions. This line will change constantly to reflect where you are in PC Secure. When function keys appear on the bottom line, the associated commands can be invoked by pressing the associated function key(s) or positioning the mouse cursor on any portion of the command or key and clicking the mouse. For example, to encrypt a file just press F4 or click anyplace on "Encrypt" with the mouse; this will bring up the file selection box for selecting a file to encrypt. The commands disappear when the bottom line contains help messages.

The following function keys are available in PC Secure:

To	Press
Get Help	F1
Get the Help Index	F2
Exit PC Secure	F3
Encrypt a file	F4
Decrypt a file	F5

For directions on using the mouse or keyboard commands to move through the menu items and dialog boxes, please read the "Getting Started" chapter.

PC Secure Parameters

The following command line parameters enable you to run PC Secure from the command line or as a batch file to quickly encrypt or decrypt files.

You may use as many parameters as you want on the command line, and the order and case (upper or lower) of the parameter is unimportant. Any “illegal” or invalid parameters are ignored.

Parameter	Description
/D	Decrypts the specified files
/F	Performs full encryption on the specified files
/Q	Performs quick encryption on the specified files
/C	Turns compression off when encrypting
/P	Prompts for a key
/Kxxxxx	Specifies xxxxx as your key

/P: If you press the `ESCAPE` key, the current password is aborted and you are given the opportunity to type another. You may use `ESCAPE` multiple times. If you make a mistake in typing, you may use `ESCAPE` to completely start over or `BACKSPACE` to delete characters one by one. Pressing `ENTER` accepts the keystrokes to that point.

/K: You are not prompted to enter your key. You must immediately type a password (key) after typing `/K`. If you press the `SPACEBAR` or `ENTER` immediately after typing `/K`, you do not have a valid key.

Important: If you encrypt files from the command line, the file is encrypted without benefit of having a master key. The only way to decrypt it is to use the password typed at the time of encryption.

Examples:

```
pcsecure /q /k12345 *.doc
```

will encrypt all .doc files in the current directory using quick encryption with compression, and the key 12345.

```
pcsecure /f /p *.*
```

will encrypt all files in the current directory using full encryption with compression, and PC Secure will prompt you for the key.

```
pcsecure /q /c /k12345 *.txt
```

will encrypt all .txt files in the current directory using quick encryption and no compression, with the key 12345.

```
pcsecure /d /k12345 xyz.doc
```

will decrypt the file xyz.doc using the key 12345.

Encrypting Files

The Encrypt File command allows you to protect your files by electronically “scrambling” the contents. For more detailed information on how this works, please read the “Understanding PC Secure” section.

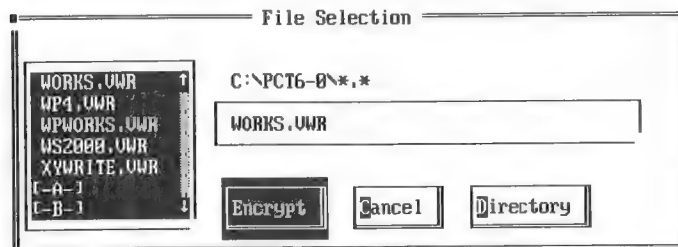
There are two methods of encryption described in the following section: encrypting a single file or encrypting all the files in a selected subdirectory.

***Note:** You may encrypt a file more than once. However, you must decrypt the file the same number of times it was encrypted, in reverse order.*

☐ To encrypt a file:

- Choose the Encrypt File command from the File menu, or press F4, or click the word “Encrypt” on the Message Bar.

This brings up the File Selection dialog box containing a list of the files with extensions in the current directory. In addition, drives and directories appear in the list box so you can move to a different drive or directory to select a file. Drives and directories are indicated with brackets around the drive or directory name, for example, [-C-] and [PCTOOLS]. The first file in the current directory is highlighted in the list box and selected in the text box. Pressing Enter will encrypt the file listed in the text box.



You can either select a different file from the list box or type a file name in the text box.

❑ **To select a file name from the list:**

Note: You can change the name of the current directory by entering a new path name in the text box and pressing Enter. You can also change the file wildcards to show all or selected files. For example, changing *.* to *.EXE will list files in the selected directory with .EXE extensions only.

Once you have the appropriate directory and list of files to choose from, you may then:



1. Select the file name you want to encrypt by pressing the Up and Down arrow keys, or the PGUP, PGDN, HOME and END keys to move through the list box.
As a file name is selected, it is highlighted and displayed in the text box.

2. Press ENTER or ALT - E to encrypt the file.

The password dialog box appears.

or



1. Select the file you want to encrypt by clicking on its file name in the list box. (Use the scroll bar if there are more files than will fit in the list box.)
The selected file is displayed in the text box.

2. Click on the Encrypt command button.

or

Double-click on the selected file from the list box.

The password dialog box appears.

❑ **To type the file name:**

When the File Selection dialog box appears, the first file in the current directory is highlighted in the list box and selected in the text box.

1. Tab to the text box.
2. Type a file name and extension for the file you wish to encrypt. You can also type the full path name if you want to change directories.



3. Press **ENTER** to select the file, then press **ENTER** again to encrypt the file, or just press **ALT - E** to encrypt the file.

or



Click on the Encrypt command button.

The password dialog box appears.

❑ To enter the password:

This password should be different than the master key you entered earlier. The master key is used as a “backdoor” to decrypt any file whose specific password has been lost or forgotten. The password you enter now is specific for this file.

An alphanumeric key can have 5 to 32 alphabetic or numeric characters and is case-sensitive (PC Secure knows the difference between upper and lower case letters.) When you type an alphanumeric key, PC Secure displays an asterisk (*) instead of the character.

Key Input	
Please enter the password :	<input type="password"/>

1. Type a password for this file.
Press **ENTER**.

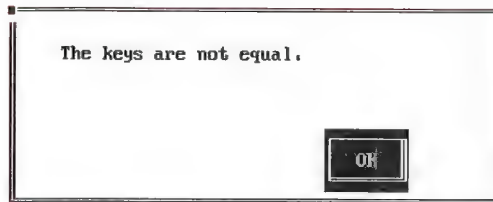
This file key is the same key you will use to decrypt the file later.

Another dialog box appears after you have entered your password, asking for verification.

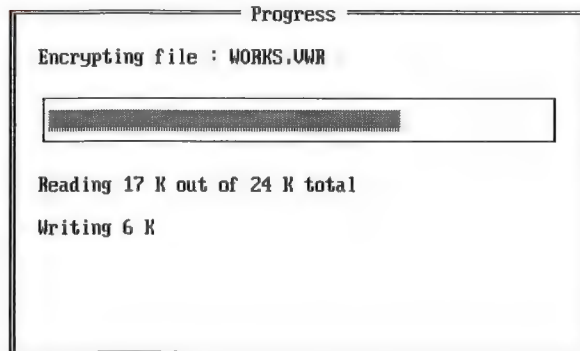
Key Input	
Please verify the password :	<input type="password" value="*****"/>

2. Type the same password again.

Note: If you make a mistake by typing the wrong key into one of the password dialog boxes, another dialog box will inform you that the “The keys are not equal.” You can press **ESCAPE** to abort the process and return to the main screen.



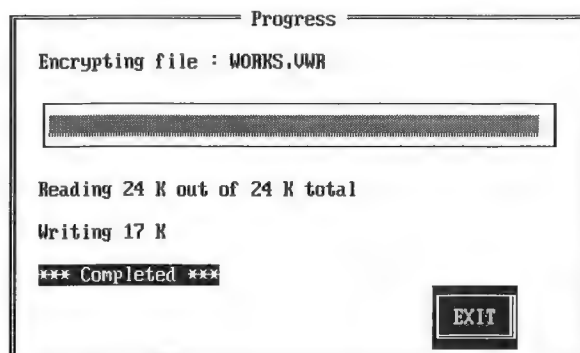
When you press `ENTER` after typing your password a second time, PC Secure starts to encrypt your file.



PC Secure shows you its progress while encrypting.

Note: If you are using the `/G` parameter, once the file has been encrypted, PC Secure destroys the original file and overwrites it 7 times. This process takes a little time, and no message will appear telling you to wait.

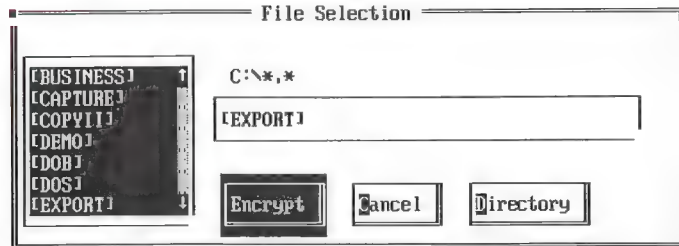
When PC Secure is finished, the screen changes to show the following message:



❑ To encrypt a subdirectory:

1. Choose the Encrypt File command from the File menu, or press F4, or click the word "Encrypt" on the Message Bar.

The file selection dialog box appears.

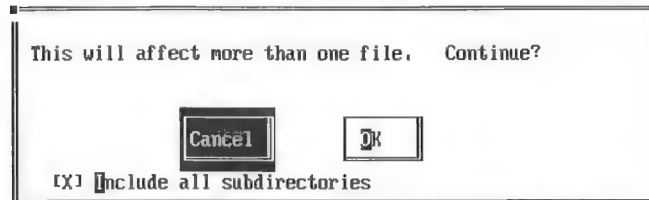


2. Select the subdirectory you wish to encrypt.

Directories can be easily identified because they have brackets [] around the name.

3. Select the Directory command button.

A dialog box appears with 3 choices:



Include all subdirectories: By selecting the check box, you are telling PC Secure to encrypt all nested subdirectories within the selected subdirectory. By leaving the check box blank, you are specifying that only files within the selected subdirectory be encrypted.



Be aware of the contents of subdirectories you want to encrypt. Subdirectories containing .SYS files, COMMAND.COM, active memory resident programs, or PC Secure itself should not be encrypted.

OK: By selecting OK, you are telling PC Secure to continue with the encryption of the selected subdirectory.

Cancel: By selecting Cancel, you will return to the File menu.

4. Select the Include all subdirectories check box if you wish to do that. Otherwise, leave it blank.
5. Select OK to continue with encryption or Cancel to return to the File menu.

A password dialog box appears.

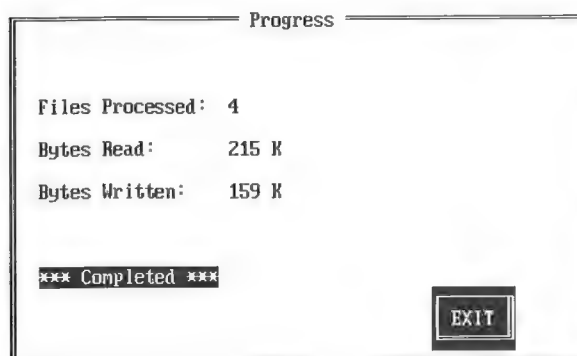
Note: If the option **One key** from the options menu is ON (a check mark will be by its name) you will not be asked for the password for subsequent file encryptions for the duration of the session.

6. Type a password for this directory.
Press ENTER.

This is the key you will use to decrypt your subdirectory later. (Please read the "Managing Your Keys" section if you would like some hints on good passwords.)

A second password dialog box appears asking for verification.

7. Type your password a second time and press ENTER.
PC Secure starts to encrypt all the files in the subdirectory. When it is finished, the screen changes to show the following message:



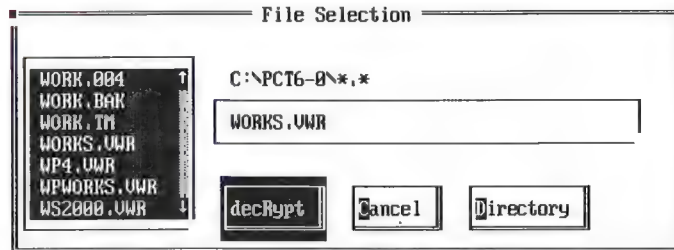
Decrypting Files

The Decrypt File command allows you to "unscramble" a previously encrypted file or subdirectory. It will restore the file to its original condition.

❑ To decrypt a file:

1. Choose Decrypt File from the File menu, or press F5, or click the word "Decrypt" on the Message Bar.

The file selection dialog box appears.



2. Select the file you wish to decrypt.
3. Select the Decrypt command button.

A password dialog box appears, just like the one used in the encryption mode.

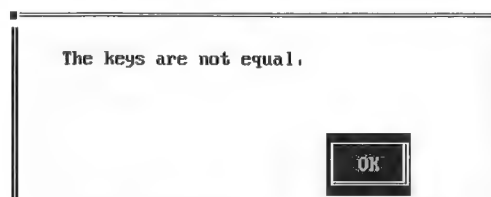
Note: If the option *One key* from the options menu is ON (a check mark will be by its name) you will not be asked for the password for subsequent decryptions for the duration of the session.

4. Type the same password you used to encrypt the file and press ENTER.

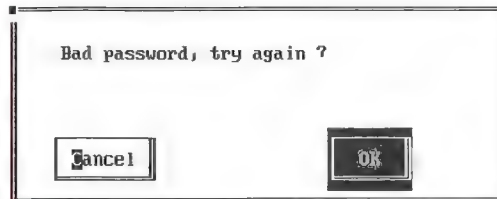
A second password dialog box appears asking for verification.

5. Type your password again.

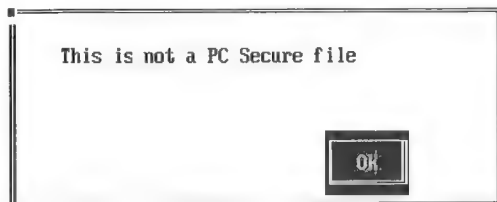
Note: If you make a mistake by typing the wrong key into one of the password dialog boxes, another dialog box will inform you that the "The keys are not equal." You can press ESCAPE to abort the process and return to the main screen.



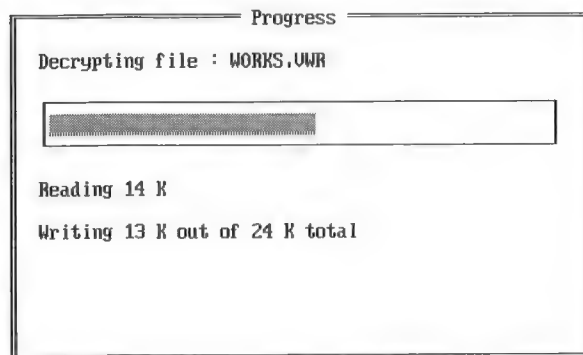
If you inadvertently type the wrong password, a dialog box appears with the message "Bad password, try again?"



Note: If you selected a file to decrypt that was not encrypted at all, you will see the following dialog box:

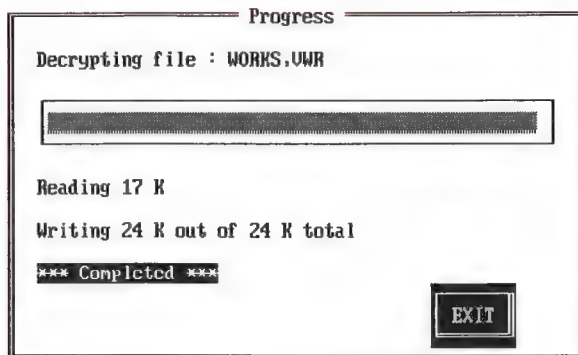


- Select OK and go back to step one. Otherwise, PC Secure starts decrypting the file.



While PC Secure decrypts the file, it shows you its progress.

When decryption finishes, the screen changes to show the following message:



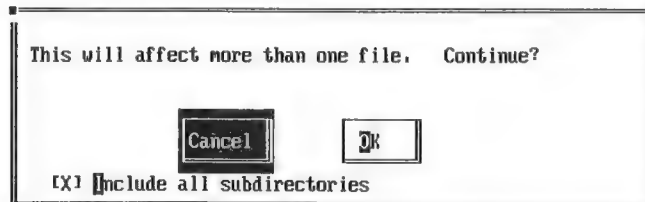
❑ **To decrypt all the files in a subdirectory:**

1. Choose Decrypt File from the File menu, or press F5, or click the word "Decrypt" on the Message Bar.

The file selection dialog box appears.

2. Select the subdirectory you wish to decrypt.
3. Select the Directory command button.

A dialog box appears with 3 choices:



Include all subdirectories: By selecting the check box, you are telling PC Secure to decrypt all nested subdirectories within the selected subdirectory. By leaving the check box blank, you are specifying that only files within the selected subdirectory be decrypted.

OK: By selecting OK, you are telling PC Secure to continue with the decryption of the selected subdirectory.

Cancel: By selecting Cancel, you will be returned to the File menu.

4. Select the Include all subdirectories check box if you wish to decrypt them. Otherwise, leave it blank.
5. Select OK to continue with decryption or Cancel to return to the File menu.

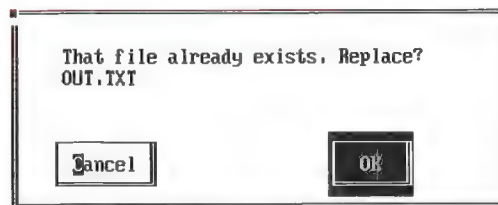
If you continue, a password dialog box appears.

6. Type the same password you used to encrypt the subdirectory and press ENTER.
A second dialog box appears asking for verification.
7. Type your password again and press ENTER.

(If you get an error dialog box, please see the previous section Decrypt File for an explanation of error dialog boxes.)

PC Secure starts decrypting all the files in the subdirectory. It will show its progress during the decryption.

"File already exists" Dialog Boxes



This dialog box appears if you have changed the setting of the Delete Original File option (found under the Options menu) to OFF. This is what happens:

- A file is encrypted. This file is called <name>.SEC after encryption. The encrypted copy is left in the same directory as the intact original file.
- You decide to decrypt <name>.SEC at some point.
- After going through the steps of decryption, the dialog box informing you "File already exists" appears.

What has happened is PC Secure has decrypted the copy back to its original name. It sees the original file on the disk, and sends you this dialog box asking what to do.

- If the original file has not been changed since the copy was encrypted, you may select OK. The decrypted copy will write over the original file.



If the original file HAS been changed since the copy was encrypted, select Cancel. Otherwise, the decrypted copy will write over the original file and all changes will be lost. To prevent this, you should either rename or move the original file, and then decrypt <name>.SEC.

- Or, you try to encrypt both a <name>.HLP file and <name>.EXE file. You will get the “File already exists.” message. Answering OK will cause the first <name>.SEC file to be lost. To prevent this, you should either rename or move one of the files.

For maximum security, it is recommended you leave the Delete Original File command ON when encrypting a file.

Understanding PC Secure

DES is a block cipher, working by a combination of transposition and substitution. DES starts by dividing the incoming data into blocks of 64 bits. Next, during the “key expansion” phase, the 56 bits in the key are permuted into 16 32-bit keys for internal use. After that, the bits are reordered or transposed. The 64-bit block is split into 2 32-bit blocks. Then, for a total of 16 steps, or rounds (2 for quick compression), a 32-bit block is combined with the expanded key and used to index a substitution table. The 32-bit blocks are swapped, and the result from each round is fed to the next. Finally, the bits are transposed once more.

Using Expert Mode

Since the underlying DES algorithm is strong, the entire security of your encrypted files relies on the way you use it.

Expert Mode Off (Default Setting)

If you encrypt your files using the default setting (Expert Mode off), you can decrypt them with either the master key or the file key. In effect, the master key acts as a backdoor which can decrypt any file encrypted with Expert Mode off.

Expert Mode On

If security is your primary concern, you should turn on Expert Mode **BEFORE** you encrypt sensitive material. This removes the master key backdoor, so the encrypted file can only be decrypted by the file key used at the time of encryption.



If you encrypt with Expert Mode on, you can only use the file key for decryption. If this key is lost, there is no known way to decrypt the file.

Choosing a Key

Here are some ways to select a hard to guess key:

- **Random Dictionary Method:** Close your eyes, open a dictionary, point at the page, and open your eyes. The closest word becomes the first word of your key. Repeat the process, and find a second word. These two words are your new key.
- **Random Hexadecimal Method:** Use a mechanical method to generate the number, since it is difficult for people to think up a genuine random number. This is the strongest key, but be sure to write it down. Or, open a table of random numbers using the dictionary method above, then convert the decimal to a 16-digit hexadecimal number. Or, flip a series of coins, then convert the head/tail sequence to a 16-digit hexadecimal number.

Managing Your Keys

There are three main points to managing keys:

- Choose keys that can't be guessed easily.
- Guard your keys from being revealed to other people.
- Never lose or forget your keys.

Alphanumeric and Hexadecimal Keys

PC Secure allows you to choose either an alphanumeric or hexadecimal key.

☐ To enter alphanumeric keys:

An alphanumeric key may be any string of letters, digits, or punctuation marks. It must be at least five characters long (shorter keys than this are too easy to guess through sheer luck) and may be as long as 32 characters. Alphanumeric keys in PC Secure are case sensitive. This means that "flower," "Flower," and "FLOWER" are treated as three distinct and different keys. You must remember the exact spelling of an alphanumeric key.

☐ To enter hexadecimal keys:

When the dialog box for entering a key appears, press the F9 key, and PC Secure prompts you to enter a hexadecimal key. A hexadecimal key consists of any combination of the digits 0-9 or the letters "A" to "F" (or "a" to "f"; PC Secure is not case sensitive for hexadecimal

keys.) Hexadecimal keys are always 16 characters in length. Since typing in a long number can be an error-prone process, PC Secure displays the characters of a hexadecimal key as you enter them.

For your convenience in typing, PC Secure allows you to enter a hexadecimal key as one string of 16 characters, two strings of eight, or four strings of four characters, separated by spaces.

Data Compression

PC Secure has the ability to compress your files in one pass as it encrypts with no perceptible loss of speed. This compression feature means your files take up less room on the disk, and are faster to transmit via modem.

PC Secure uses block-adaptive Lempel-Ziv-Welch (LZW) compression. This technique, unlike Huffman coding (another widely used compression algorithm), can be done in one pass, and does not require storing a translation table with the file.

File Types that Won't Compress

Although PC Secure will compress most PC files by a significant amount, there are a few kinds that won't shrink under LZW. In fact, they may grow larger. Files that have already been processed with some form of compression probably can't be further compressed by PC Secure.

For example, a word processor's spelling dictionary would actually grow by compressing it. The same is true for files which have been compressed by an archiving utility such as ARC. For these types of files, disable the compression option.

Note: *Disable the compression option the second or third time you encrypt the same PC Secure file.*

Minimizing the Effects of Data Errors

Note: *Encrypted and/or compressed files are binary files; do not use an ASCII transmission method.*

Since the translation table is rebuilt on the fly when decompressing, any errors in the file will spread. If phone noise causes the first "the" in a file to be read as "thb," all subsequent occurrences of this string will be decoded as "thb." Under normal operating conditions, this type of error is rare.

File-transfer protocols such as Xmodem or Kermit incorporate error detection and re-transmission to make sure data is received correctly. However, if you are preparing a file for archival backup or for transmission over a very noisy phone line, you might want to disable compression just to make absolutely sure the file can be recovered correctly.

Transferring Encrypted Files

When transferring DES-encrypted data, both parties must agree on a key for both encrypting and decrypting. The computers on both ends should have:

- Communication packages that support Xmodem such as the PC Tools Desktop Telecommunications application.
- The PC Secure program.

❑ To transfer files via modem to another PC:

Note: Transferring encrypted files from point A to point B requires some pre-arranged method for agreeing on a key. Keys, obviously, should never be transmitted in the clear over the phone. The best method for exchanging is to pick a key that will be used for all transmissions and deliver that key to the branch office (or point B) via a trusted courier, a scrambled phone line, or some other "secure" channel.

1. Transfer the key to the recipient.
2. Start PC Secure at the transmitting site.
3. Encrypt the file with PC Secure using the prearranged key. PC Secure automatically adds a header encoding all of the PC Secure settings.
4. Start the communications program on both ends. Transfer the file using your communication program. Close the communications programs.
5. Decrypt the file with PC Secure at the receiving site using the prearranged key. PC Secure uses the encoded header to recreate all of the original settings.

❑ To transfer an encrypted file from a PC to a Macintosh:

The programs you use on both MS-DOS and Macintosh machines must support binary transfers. It is recommended that you use Xmodem or another error-detecting protocol.

The Macintosh on the other end must use the Macintosh version of PC Secure (part of MacTools Deluxe).

1. Transfer the key to the recipient.
2. Start PC Secure on the PC.
3. Encrypt the file using the prearranged key.
4. Make sure you can successfully send a binary file. When you succeed, you can send encrypted files.
5. Transfer the encrypted file onto a Macintosh disk (you can modem the file, access it over a network, use the Deluxe Option Board (DOB) to copy the file, or use the Apple File Exchange to convert the file).

Note: If you are using Deluxe Option Board software (MCP files) prior to version 5.3, you must do step 6 in order for the Macintosh version of PC Secure to recognize the encrypted file. If you are using DOB software 5.3 or higher, MCP will put the correct Type and Creator headers on any files with the .SEC extension, so skip ahead to step 7.

6. On the Macintosh, use FileEdit to change the file as follows:
 - a. Open FileEdit by double-clicking on its icon.
 - b. Insert the disk containing the encrypted PC file.

The disk window should show the contents of the disk.
 - c. Select the encrypted file by clicking once on it.
 - d. Choose the InfoEdit Files command from the File menu.

InfoEdit shows you the Type and Creator values for any file, and allows you to change these values.
 - e. In the File type box, type: DesC (capital D, little "es," then capital C)
 - f. In the File creator box, type: DesE (capital D, little "es," then capital E)
 - g. Select OK. The new values will be written.
 - h. Exit FileEdit.
7. Run Secure on the Macintosh.

8. Select Decrypt from the menu, and select the file you just changed.
9. After the file is decrypted, you must return to FileEdit to change the newly decrypted file's Type and Creator to whatever application you wish to use. For a word processor, you can change the Type to TEXT. Any word processor will then open the file.

☐ **To receive an encrypted file from a Macintosh computer:**

1. Get the key from the other site.
2. Encrypt the file on the Macintosh using Secure.
3. Transfer the file to a PC disk using one of the methods described above.
4. Decrypt the file on the PC using PC Secure.

You will see three files after decrypting:

<filename>.NFO

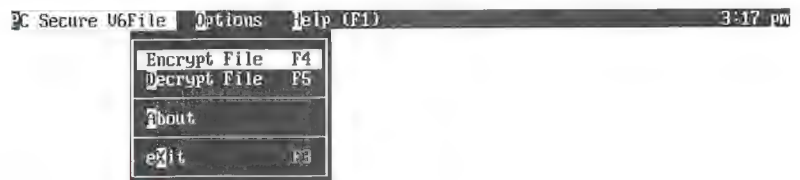
<filename>.RSC

<filename>.DTA

The .NFO extension contains Finder information that came over from the Macintosh. The .RSC extension contains resource fork information that came over from the Macintosh. The .DTA extension is the file that actually contains the data from the original Macintosh file.

The File Menu

The File pull-down menu provides a list of commands for encrypting and decrypting your files and subdirectories. It also provides the commands to find the degree of compression obtained and to quit PC Secure. Encryption and Decryption have already been explained.



About

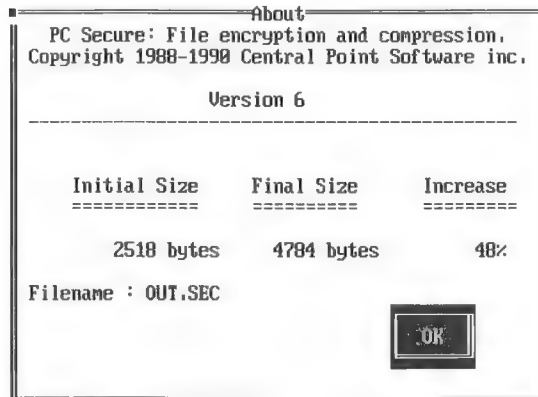
The About command gives you information about file compression achieved during encryption.

1. Choose About from the File menu.

You will see copyright information about PC Secure. It is here that you can see the compression achieved on the latest encrypted file, including the initial size of the file, the reduced size, and the percentage of compression. The file name is listed at the bottom of the box.

***Note:** If a directory has been encrypted and compressed, only the name of the last file in that directory will be displayed here.*

2. Select OK to close the box.



Exit

The Exit command allows you to exit PC Secure.

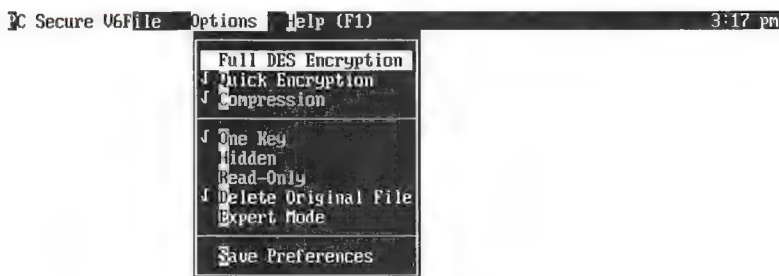
1. Choose Exit from the File menu, or press F3, or click the word "Exit" on the Message Bar.
2. Select Exit. Select Cancel (or press ESCAPE) to remain in PC Secure.

The Options Menu

The Options Menu provides commands that handle the way PC Secure encrypts, decrypts, or compresses your files. Choosing an option, by clicking on it or pressing Enter when the name is highlighted, toggles it on or off. No dialog boxes will appear—a

checkmark on the left side of the name means the option is ON. The default settings (as shown in the illustration) are the following:

- Quick Encryption
- Compression
- One key
- Delete Original File



Full DES Encryption

Full DES Encryption runs half as fast as Quick Encryption but is theoretically more secure. With this option turned ON, Full DES Encryption does 16 encryption rounds. For more detailed information on how DES works, please read the "Understanding PC Secure" section.

Quick Encryption

The default for this option is ON. Quick Encryption runs twice as fast as Full Encryption but is theoretically less secure. Quick Encryption will do 2 encryption rounds.

Note: Turning off both encryption methods will do compression only.

Compression

The default for this option is ON. Leave this on if you are encrypting a normal PC file or subdirectory for the first time. PC Secure can reduce the size of most files from 25% to 60%. Refer to the "Data Compression" section for more detailed information.

Turn off compression if:

- the file has already passed through a compression program such as ARC.
- you are encrypting a PC Secure file a second or third time.

*Note: If you want to see file sizes before and after compression, pull down the File menu and choose the **About** command.*

One Key

With this option ON, PC Secure only prompts for a password the first time that you encrypt or decrypt a file. It continues to use the same key for every following encryption or decryption for the duration of activity. However, if a file being decrypted has a different key than the first-time key, PC Secure asks you to enter the new key. The default is ON.

With this option OFF, PC Secure will prompt you for the key for every file you encrypt or decrypt.

Hidden

This makes the output file invisible to normal DOS directory routines. Making your encrypted files hidden is an easy way to remove them from casual inspection. If you should forget the name of the encrypted file, you can scan the disk for it using a program such as PC Shell. PC Secure will not display a hidden file.

Read-Only

This in effect “locks” the file, preventing it from being deleted accidentally. If you try to delete a read-only file, DOS displays the message “Access Denied.”

Delete Original File

The default for this option is ON. This means that PC Secure encrypts your ORIGINAL file. PC Secure makes a copy of the original file, encrypts the copy, and then destroys the original. **You cannot recover a destroyed file.** The original is not destroyed until the copy is safely encrypted, so there must be enough room on the disk for both the original and the copy and a small amount of “overhead” depending on the drive type.

When this option is OFF, PC Secure makes a copy of the original file, encrypts that, and appends the extension .SEC to it. Your original file

is intact, and you have an encrypted copy of it with the extension .SEC. You must have enough space on your disk for both files.

If you start a session of PC Secure using the /G parameter, make sure this option is left ON to ensure that you are achieving the U.S. government's Department of Defense standard of file security.

For maximum security, it is recommended you leave the Delete Original File command on when encrypting files.

Caution: When you decrypt a file with .SEC appended, you may get a dialog box informing you that "File already exists. Replace?" If the original file has not been changed since the copy was encrypted, you may select OK. The decrypted copy will write over the original file. If the original file HAS been changed since the copy was encrypted, select Cancel. Otherwise, the decrypted copy will write over the original file and all changes will be lost. To prevent this, you should either rename or move the original file, and then decrypt <name>.SEC.

Expert Mode

The default for this option is OFF.

When you encrypt a file with Expert Mode OFF, you can decrypt it if you forget the file's specific key by using the master key. The master key is entered the first time you use PC Secure.

When you encrypt a file with Expert Mode ON, it cannot ever be decrypted if you lose your file key. Your master key will NOT work. This mode is intended for your most sensitive data.

For more detailed information on expert mode, please read the section on "Using Expert Mode."

Save Preferences

The Save Preferences command allows you to save the settings you have chosen in the Options menu. It is loaded every time you run PC Secure.

1. Choose Save Preferences from the Options menu.

PC Secure automatically saves your current settings in the same directory as your PCSECURE.EXE file.

Part 5

Appendices and Index

This part contains the following:

- Appendix A: Memory-Resident Programs
- Appendix B: Having Trouble?
- Appendix C: Technical Support Checklist
- Index
- Addresses

Appendix A: Memory-Resident Programs

What are They?

Memory-resident, or terminate-and-stay-resident (TSR), programs are small applications that remain ready to be called up at a moment's notice. These programs may be brought up over other active programs, such as Lotus 1-2-3, Word Perfect, etc. Some TSRs allow DOS command-type functions, Copy, Delete, Format, to name a few. PC Shell is an excellent example of this type of utility.

The Desktop TSR was written to help counteract paper clutter on a desk. Phone dialers, notepads, even calculators can pop up over your spreadsheet for a quick call, note or calculation. Once you've used a desktop utility, it's hard to imagine being without one.

TSRs can save you time, and they can also be a source of frustration, especially if you use more than one in your system. We have taken great pains to make both PC Shell and Desktop well-behaved. These two products should have few, if any, compatibility problems.

The next few sections of this Appendix will deal with how TSRs work, problems they may cause and what to do about them.

How Do TSRs Work?

TSRs were first developed by Microsoft with the Print command. Through Print, you could load different print jobs into the computer's memory and return to other tasks. The computer would busily print the jobs while you created other documents. Other software manufacturers thought if Print could do this, why not do it with other types of applications. So the TSR was born. Soon, you could jot down notes on what to bring home for dinner or figure your entertainment budget, all without ever leaving your spreadsheet.

In actuality, TSRs don't really allow you to do more than one job at a time. They still use the same processor as other programs. The only difference is they suspend the main application while they do their work. This means even though Print was giving the illusion of doing more than one job, it really was suspending the current application for a few milliseconds, sending data to the printer and returning control to the current application. Usually it happened so fast it was hardly noticeable. This is similar to what most TSRs do. They

suspend the main application, do their jobs and return to the same place you left off. Hopefully, all without a hitch!

The way a TSR loads into your system is generally through the AUTOEXEC.BAT file in the root directory of your bootable drive. By doing this, the memory-resident program is always ready to go when called upon. TSRs can also be loaded from the DOS command line. Once a TSR is loaded in memory, it stays in a section of memory until activated by a certain keyboard sequence (called a hotkey). With these hotkeys, the program comes alive, over your other programs. Some TSRs require a large amount of memory to be set aside to remain resident. Unlike these, PC Shell requires a small kernel of memory to remain dormant. When activated, PC Shell and Desktop save part of your computer's memory to the hard disk before loading the rest of their code. This allows them to use all the memory they need while active and yet take almost no memory from your other non-resident programs.

Can They Cause Problems?

With the advent of TSRs came a whole new set of problems. Occasionally, they can cause the system to hang, or worse yet, lose data. To be fair though, all programs can do these things. When DOS was written it was never really intended to do the things it must for TSRs. Only through careful programming can TSRs be useful products. Unfortunately, standards for writing TSRs have not been universally adapted by the industry.

Most TSRs are incredibly handy and extremely well written, but by their very nature, they may conflict with certain applications or usually each other. When this happens, problems can follow.

What Can I Do to Fix the Problem?

Generally, if you follow the manufacturer's instructions for installing the program, all works well. Sometimes though, problems will arise. Two of the most common TSR conflicts are

- Conflicts with other TSRs
- Conflicts with applications.

Conflict with Other TSRs

If a problem arises after installing a new TSR, chances are it is conflicting with another TSR already in the system. Some symptoms of this are

- Computer will not completely boot up (start).
- A TSR will not come up after the correct hotkeys are pressed.
- The system "hangs" when entering or exiting a TSR.

As with any problem, you will need to put on your detective hat and investigate the cause.

The installation manual for your software (especially TSRs) should inform you if the AUTOEXEC.BAT file was changed to accommodate the new program. If the file was changed, the placement for the new TSR may conflict with another existing TSR. The loading order is critical for some memory-resident programs. You will need to take the following steps to correct this problem:

1. Load your AUTOEXEC.BAT file into a text editor, like the Word Processor in PC Shell or Edlin. Don't worry, the AUTOEXEC.BAT is a text file and is easily read and edited.
2. Compare the file with the following suggested loading order guideline:
 - DOS internal commands (path, prompt, echo off, etc.)
 - DOS external commands (mode, print, keyb, etc.)
 - Mouse commands
 - Print spoolers
 - Mirror (programs that help recover hard disks)
 - PC-Cache (disk caching programs)
 - Keyboard enhancement programs (Superkey, Prokey, etc.)
 - Anything that doesn't fit the other categories
 - PC Shell (resident)
 - PC Tools Desktop
 - Menu or shell programs (1DIRplus, Xtree, Direct Access, etc.) (PC Shell non-resident)

Note: *In some cases, print spoolers need to be loaded before DOS print. If you still have difficulties, try reversing their loading order.*

3. If changing the loading order doesn't help, then you will need to find out which programs are conflicting with each other. To do this, boot from a master DOS disk in drive A

and move to drive C. This will clear out any memory-resident programs and allow you to start with a clean slate.

4. Start typing each line from your AUTOEXEC.BAT file, one line at a time. Don't forget to set the path statement. It should be one of the first lines in your file. After loading in a TSR, test it. If it works fine, go on to the next line. Through this process of addition and testing, you should find out which programs are conflicting.
5. The fix may be as simple as changing the loading order of the conflicting programs. It may also be that the programs are conflicting because they both use the same hotkey setup. If so, refer to the program's manual for changing the hotkey setup for better compatibility.

Conflict with Applications

If the TSR you are using will not pop up over your spreadsheet, word processor, etc., or will not correctly return you to these programs, the TSR may simply not be compatible with that particular program. Here are some common problems:

Graphics mode: Some programs are designed to run in graphics mode. If an application is running in graphics mode and the TSR does not support graphics, the screen may fill with garbage characters, or just refuse to come up at all. To solve this problem, see if the program can be run in text mode. If it can, and this is acceptable to you, then you can use your TSRs from inside your programs running in text mode.

EGA graphic cards can be another source of problems. A TSR cannot read the current video settings as many of the EGA's registers are write-only. This doesn't cause problems while running the TSR, but when the TSR tries to restore the video display to the state it was in before the TSR was activated, it doesn't have all the information it needs, so it makes a best-guess. Often it will guess correctly and the screen will be returned properly. Sometimes, especially if several different colors were used, the color may be wrong. The solution to this problem is to run your EGA graphics program in black and white mode, or to not use your TSR while it is running.

Memory: The other common problem with TSRs and applications is an error due to the lack of memory. Remember, TSRs do allocate a piece of memory to do their job. The more TSRs you use, the more memory you take away from other applications. Large databases and spreadsheets need almost all available memory to run. If you receive an error that indicates you do not have enough available memory to

run the application, you may need to remove some of the TSRs in your AUTOEXEC.BAT file to free up enough memory to run a particular application.

Both PC Shell and Desktop use a virtual memory scheme to minimize memory usage when not active. When activated, they swap out allocated memory to files on the hard disk. This allows them to utilize large portions of system memory to perform their functions. When finished, they carefully restore the computer's memory information, leaving no trace of ever being activated. What all this means to you is PC Shell and Desktop only tie up a small amount of memory when inactive. Once activated, they both take full advantage of available system memory to perform their functions quickly and efficiently.

Hotkey Conflict: The same keystrokes the TSR is using to activate itself may also be used to perform a function in your underlying program. The best fix is to change the hotkey setup for the TSR. Both PC Shell and Desktop have this capability. If changing the hotkey setup is not available in the TSR you are using, then the application may have the ability to change its keystrokes.

Now What?

If all else fails, give the manufacturer's technical support group a call. They can generally help with loading order problems and the like. It is also important to software manufacturers to know which programs are causing conflicts, so they may be addressed in a later version, if possible.

This information was intended to answer some questions on TSRs and save you a phone call to technical support. At the very least, it may give you better ideas on where to look for a solution when problems arise.

Appendix B: Having Trouble?

The following problems and probable solutions are listed to help if you should encounter one of them in the course of using any of the PC Tools Deluxe utilities. These errors and problems are listed here according to the program that issues them. Please check this list to see if the problem you are experiencing is here before you call for technical support.

In addition to this chapter, Part 3 of the manual contains a section devoted to helping you solve general disk problems and troubleshoot errors generated by CHKDSK.

PC Shell

PC Shell has blinking characters on screen on CGA and EGA monitors.

Check the back of your monitor to see if the "Manual" feature is on. If so, turn it off. If your underlying application has blinking characters after you have hotkeyed into PC Shell or Desktop and then hotkeyed out again, you can set the high intensity on exit option in the program's change color dialog box.

"Not enough memory" to run PC Shell

You could receive this error if you have PC Shell, Mirror, PC-Cache, and Desktop all loaded in memory when you try to run an application with the DOS command line on. Remove Desktop and try again.

Residency size must allow at least 40K for other programs or residency specification will be ignored

You need at least 40K of free memory after Shell is loaded in resident mode or you will receive this message. Try reducing the /A parameter and running Shell again.

“File Creation Error” or “Access Denied”

This error indicates that the disk you are copying to is full, or the file exists in the directory but is marked “read-only,” or the maximum number of files in the root directory has been reached (111).

“Too many Files to process”

The number of files PC Shell can process depends upon the amount of memory available. If you receive this error, try running PC Shell in non-resident mode, or use the /A parameter.

“File Header Missing”

If you are trying to view a .PCX file and receive this message, it means that the file you are viewing is in a non-standard PCX format. Genus Microprogramming publishes a program called PCX Programmer’s Toolkit, which can help repair these kinds of files.

Exiting Shell blanks the screen.

If you have a different version of ANSI.SYS (for example, GANSI.SYS, VEGAANSI.SYS, etc.) try using that instead of your regular ANSI.SYS.

Cluster chain in use, unable to recover this file.

Issued by Undelete. The first cluster of the file is already allocated by another file. Undelete will not be possible.

File already exists, press any key to continue.

During Undelete, the first character of a file was requested. However, with this first character, the file name generated already exists. Another first character is required.

Automatic recovery is impossible, you must use manual recovery.

During Undelete, a file was selected but the first cluster is already allocated. Automatic recovery is impossible and the user is forced to use the manual mode.

Overlay file not found.

This message is issued when an error occurs when trying to load PC SHELL.OVL. Something has made the file inaccessible. Most likely the file was deleted, renamed, changed, or moved.

Vectors are not as expected. Other memory-resident programs may have been loaded after PC Shell. Removal of PC Shell may produce unpredictable results.

During the removal of PC Shell as a resident program, it was discovered that the interrupt vectors have been changed in a manner that could very likely mean that another program was made resident after PC Shell. If this is so, and you continue, unpredictable results could occur. The issuance of ASSIGN, PRINT, MODE or Fastopen could cause other resident programs to be installed. If this message is given, you should NOT continue, but reboot to regain the memory.

Sector is in the system area – confirm update by pressing “U” (“Esc” to cancel).

Issued by the sector editor when updating a sector that is part of the Boot, FAT or the root directory. You are being given a warning to this effect and have the opportunity to change your mind.

Any of the following messages may be issued when creating or using the PCSHELL.OVL:

Overlay path is bad

No handles for overlay file building

Access denied to build overlay file

Bad handle detected

Overlay file build stopped. Unknown msg

You can also use the /Od parameter to force the use of a different drive for the overlay file.

If the error occurs during initialization, you might try using another drive for the overlay file. If the error occurs during normal

operations, the overlay file has become inaccessible for some reason. The most likely reason is a lack of handles. To correct this, increase the specification for the FCBS and FILES parameters in your CONFIG.SYS file. Also, if the overlay file has been deleted or modified, a problem can occur. This, of course, should be avoided.

Graft would cause duplicate entries Cannot prune current directory.

These messages can be issued during directory maintenance, and indicate the reason the requested maintenance cannot be performed.

Cannot copy a high capacity diskette onto low capacity diskette drive.

Disk Copy issues this message when an attempt is made to copy a 1.2 or 1.44 MB diskette to another drive that cannot duplicate the capacity. The same drive should be used for both Target and Source.

Invalid or unlike drives specified or must be a single drive copy.

Disk Copy issues this message when the specified drives have no chance of using the same media and capacity.

This function supports only floppy diskette drives.

Disk Copy and Compare only operate on floppy drives.

Error(s) detected, copy may be unusable.

During the copying of a diskette, errors were detected. The data read, even though it may be bad, was used to create the copy. This may render an unusable diskette useable in spite of the errors.

Track 0 bad, disk unusable.

Disk Format can tolerate no errors on the first track. This is where all the DOS control information is stored and it must contain no errors. Errors anywhere else on the diskette can be tolerated and are recorded on the first track so those areas will never be used. This normally means the diskette is bad, but also, it may indicate a dirty disk drive. (You should clean your disk drives regularly, at least once a month.) If you can rule out a dirty disk drive, then try running Diskfix to revitalize the floppy.

Invalid drive specified.

A function was requested that required a floppy drive. The drive letter given does not represent a floppy drive.

Unknown media type

PC Shell doesn't recognize the disk media. Run Diskfix to repair.

The CPU has been tested and has been found to allow interrupts after a change to the stack segment. It should be replaced with a more recent version as it could cause random system problems.

When exiting the System Information service, the CPU is tested. PC Shell is written such that this deficiency should not cause a problem, but other programs you have may display occasional problems that can be explained no other way. These problems have been noted on some early 8088 chips.

No hard drive detected. No parking performed.

The Park function could find no hard drive with the BIOS services to park.

You may encounter any of the following errors when running Diskfix.

Too many subdirectories to process

Diskfix can handle up to 1,000 subdirectories. If you receive this error, you are trying to process more than 1,000 subdirectories. Also, Diskfix can process no more than 10,000 files.

Cannot allocate memory

This message indicates that Diskfix cannot find enough free memory to perform some function. Check to see if you are running some TSR programs or disk caching programs. If so, remove them from memory and try Diskfix again. Diskfix should never be run at the same time that other programs are attempting to use RAM.

Diskfix

You must use DOS 3.0 or newer

Diskfix (as do all PC Tools Deluxe utilities) requires DOS 3.0 or higher.

Cannot process xxxxx byte clusters

Cannot process xxxxx byte sectors

Diskfix cannot process clusters larger than 16,384 bytes (or 32 sectors of 512K each).

Diskfix cannot process sectors larger than 8192 bytes. Some disk partitioning software (such as SpeedStor) will allow you to modify the default sector and cluster size (the normal default sector size is 512 bytes) which can potentially create a combination sector size and cluster size greater than Diskfix can process.

Mirror

The following error conditions can occur when running Mirror:

Drive x error reading system areas.

Drive x error writing system areas.

These two messages mean that an error occurred reading or updating either the FAT or the root directory. These errors may indicate a physically damaged disk, in which case you must take your disk to a qualified technician for repair.

Drive x error writing Mirror image file.

An error occurred writing to the Mirror image file, MIRROR.FIL. Most likely, one of the allocated sectors is bad. Delete all Mirror files and run Disk Verify in PC Shell to find and mark those sectors as bad. Then rerun Mirror.

Drive x error tracking Mirror image file.

During the course of determining the location of all of the pieces of the the Mirror image file, an error occurred. This tracking is mandatory since the location of all the pieces may not be available when running Rebuild. This should not occur. If it does, it is recommended that you delete the Mirror files with PC Shell and retry

running Mirror. The file names to delete are MIRORS.V.FIL, MIRROR.FIL, and MIRROR.BAK.

Drive x error. Could not open Mirror image file.

For some reason, MIRROR.FIL could not be opened. There may be too many files in the root directory (commonly restricted to 512 files on a hard disk). There may be too many files open in the system (FILES= in CONFIG.SYS too small). Perhaps, file sharing is in effect in a system with non-IBM networking.

Drive x error. We were unable to find the Mirror image file in the root directory of the hard drive.

MIRROR.FIL has been created, but since its creation, Mirror is unable to find the associated directory entry to extract the necessary information. It may have been deleted or renamed by another resident program.

Drive x error. Cannot update the Mirror control file.

Indicates the inability to place the final descriptive information into the Mirror control file. An unstable sector may have been used that needs to be marked bad in the FAT. Delete all Mirror files and run Disk Verify in PC Shell to mark any unallocated bad sectors in the FAT and re-run Mirror.

Drive x error. We found some data in a file allocated in the last 1/4 of the disk that looks like our Mirror control file. Please correct or run Compress to free some space, then re-run Mirror. If you have already run Compress, then there is a file marked "hidden" that is in the way.

The Mirror control file signature was found in a sector allocated to another file. If Rebuild were run, it would make false assumptions based on the existence of this sector. Most likely, MIRORS.V.FIL has been renamed, and Mirror cannot properly operate. Either rename the file correctly or delete it.

Drive x error. Control record insufficient for all info needed for this drive.

The amount of data needed to keep track of the Mirror image file itself exceeds the space available in the first two sectors of the image file.

Drive x problem. The boot sector for this drive is incompatible with Mirror.

A properly formatted disk should contain all the necessary information to describe the physical characteristics of the drive itself in the boot sector. The information disagrees with the physical characteristics as given by DOS. An old style 8 sectors per track disk can display this tendency unless it is formatted with PC Shell.

Drive x error. There must be at least one cluster available at the end of the hard drive. Use Compress to free some space, then re-run Mirror. If you have already run Compress, then there is a file marked "hidden" that is in the way.

Mirror places its one cluster control file as close to the end of the media as possible, within the last 25% of the media. The further the found spot is from the end, the longer both Mirror and Rebuild run. Both programs search from the back end and may be further slowed by bad sectors whether or not they are marked bad in the FAT.

Drive x could not be processed.

DOS considers this an invalid drive letter. If the drive exists, try running Diskfix.

Drive x being processed.

The drive specified was recognized on the command line or taken by default and is being considered for the Mirror process.

Drive x error. Insufficient space for Mirror image file.

Your hard disk is too full to use Mirror without deleting some files first.

Delete Tracking**Two beep tones**

Whenever Delete Tracking cannot be performed for a given deletion, the computer will beep twice. Some reasons are as follows:

- the file to be deleted did not exist.
- the file to be deleted was a temporary or backup file (used by many word processors).
- insufficient disk space to create a tracking file.
- no directory entry available in the root directory.
- access to a particular file is denied.
- ASSIGN was used after Delete Tracking was installed.
- a read/write error occurred trying to track the file.
- DOS wouldn't allow updating the tracking file.

WARNING!

Unrecognized DOS INT 25h/26h handler. Some other TSR programs may behave erratically while Delete Tracking is resident! Try installing Mirror before your other TSRs.

The Delete Tracking resident portion of Mirror normally monitors these two vectors, but only when it appears completely safe to do so. This message may not indicate any actual problems, only that Mirror could not safely install the monitor. Delete Tracking installs anyway. If you are using Digital Research's form of DOS (DR-DOS), this message can be ignored.

The following drives are supported:**Drive x – 25****Drive y – Default**

Drive x was forced to have 25 entries by virtue of the parameters entered (i.e. /Tx-25). The number of entries used for drive y will be calculated from the following information (here, the user entered /Ty with no entry count).

for 360K or less	25	5K
------------------	----	----

720K	50	9K
1.2MB	75	14K
1.44 MB	75	14K
less than 20 MB	101	18K
up to 32MB	202	36K
Over 32MB	303	55K

Rebuild

Invalid or unspecified drive.

Rebuild requires the drive specification.

Drive x could not be processed.

DOS considers this an invalid drive letter. Try running Diskfix.

Bad sector being bypassed.

While searching, a bad sector was encountered and is being bypassed. This may be noticeable when DOS retries the read operation.

The Last time Mirror was used was at xx:xx on mm/dd/yy. The Prior time Mirror was used was at xx:xx on mm/dd/yy.

Indicates when one or both of the files were created.

Are you sure you want to update the system area of your drive x (Y/N)?

All validation is complete. Rebuild is on the verge of actually updating the boot sector, FAT and root directory.

If you wish to use the Last file as indicated above, press "L". If you wish to use the Prior file as indicated above, press "P". Press Escape to terminate Rebuild.

When two image files are present, you are given the choice of which to use. Normally, the Last ("L") would be specified. If this does not provide the recovery desired. You can rerun Rebuild and use the Prior ("P") file.

Mirror image file not found.

No usable Mirror image file was found. You may have requested a good image file be bypassed and might need to re-run Rebuild to use the previously bypassed file.

The Mirror image file found has inconsistent information. It cannot be used.

Rebuild is terminating. It found no useable file, but it did find what at first appeared to be a useable file, but upon closer examination of the data in the file, it did not seem useable. It is possible that the drive specified needs to be accessed through a special device driver. You should have a bootable floppy disk that allows access to all drives in the configuration. Drives with non-512 byte sector sizes are a good example. Partitioned hard drives and Bernoulli boxes are other examples. The bootable floppy with the device drivers should be used to boot the system prior to running Rebuild.

We were unable to find the Mirror control file. If you want us to search for the Mirror image file through the entire hard drive, reply "Y", else reply "N" to end Rebuild.

The Mirror control file may have been damaged. We can still look for the file, but it will take a while since every cluster must be read until good information is found.

A suspected Mirror file starting at sector xxx has been found. Do you wish to use this file for rebuilding or continue searching? "Y"= yes, use this file. "N"= No, keep searching.

No Mirror control file was found and the user indicated searching the whole disk. A suspected file was found.

The suspected Mirror file is invalid. Continuing search.

No Mirror control file was found and the user indicated to search the whole disk. A suspected file was found and the user wanted it used. It was found to be invalid and is being bypassed.

The System area of drive x has been rebuilt. You may need to reboot the system.

Rebuild has successfully run to completion. In order to use this drive as you normally would, it may be necessary to reboot to insure proper initialization of the entire system.

The file is a backup to a more recent Mirror image file.

No Mirror control file was found and the user indicated to search the whole disk. A suspected file was found, but it is known to be a backup image file. It may not be valid.

PC-Cache

Install puts PC-Cache in your AUTOEXEC.BAT file (PC-CACHE). Then when PC-Cache installs, it looks for the types of memory you have installed in your computer and when found, loads into the first available memory type it finds in this order: expanded memory, extended memory, conventional memory. If you experience any of the following problems, or if PC-Cache issues any of the errors listed below, we have provided a number of steps you can use to try to isolate the problem:

Problems:

PC-Cache “hangs” loading in the AUTOEXEC.BAT and prevents the rest of the AUTOEXEC.BAT from executing.

Accessing the drive after PC-Cache is installed “hangs” the computer.

Accessing the drive after PC-Cache is installed gives the “Sector not Found” or “Drive Not Ready” error.

You have a unique computer configuration that is not compatible with PC-Cache.

Errors:

Drive X can't be cached, physical unit unknown.

If the drive is a network drive or RAM disk, it cannot be recognized or cached. If the drive is a normal hard drive or hard drive partition, something may have happened to the boot sectors of the drive which PC-Cache cannot recognize. Try running Diskfix, or you can back up the drive, reformat it, and restore your files to fix the problem.

Sector Not Found.

After installing PC-Cache, if accessing the cached drive gives the "Sector not found" message, add /x to the parameter line at the DOS prompt and see if this helps. If you are using NEC or WYSE 3.3 DOS to partition your hard disk larger than 40 megabytes as a single partition, use the /x parameter. This forces PC-Cache to use a different protocol (either DOS 3.3 and higher or DOS 3.2 and lower).

What to do:

1. Rename the AUTOEXEC.BAT and reboot. Type at the DOS prompt:

PC-CACHE /SIZE=64K

2. Press Return. (This forces a small cache into conventional memory which helps determine what the problem is.) If this works, then the problem was that PC-Cache installed into extended or expanded memory.

In this case, you may want to cache in a different memory type. For example, if your problem occurs in extended memory, use the SIZEXP= parameter below to force cache to expanded memory. At the DOS prompt type:

PC-CACHE/UNLOAD (this will unload PC-Cache from memory)

Then retry the following to force cache to the alternate memory type:

PC-CACHE/SIZEXT=64K (for extended memory)

PC-CACHE/SIZEXP=64K (for expanded memory)

PC-CACHE/SIZE=64K (for conventional memory)

If this fails or if PC-Cache fails to install in conventional memory, then there may be a hardware compatibility problem or a problem with a driver, so call our technical support staff. We may have more information about a compatibility problem as updates are made available.

Test for compatibility:

1. Load PC-Cache using the default parameters.

2. Do a directory listing using the DIR command at the DOS prompt.
3. Execute the CHKDSK command.
4. Copy a small file to a temporary file.
5. Compare the files copied using the COMP command.
6. Execute the CHKDSK command again.

If each step works correctly, PC-Cache should be compatible with your system.

Expanded Memory Manager Problem, Function XX, Status = XX

PC-Cache is calling a needed function and the expanded memory manager gives back an answer which indicates it does not fully support that function. Try a newer driver if one is available.

Compress

System reboot recommendation CAUTION!!! Disk directories have been rewritten during the Compress function and may now conflict with directory pointers maintained by certain memory-resident programs. If disk-oriented memory-resident programs like Fastopen are active, or if a disk caching subsystem is in use, we recommend that you reboot the system before continuing. Press any key to terminate Compress.

This message appears when exiting Compress if a hard drive was compressed. This warning is for those systems with memory-resident or other software that keep hard drive location-dependent information and fail to either refresh or flush that information when the internal DOS "disk reset" command is issued. An example of this is DOS 3.3's Fastopen command, which keeps copies of recently used directory entries but does not flush its internal buffers when a "disk reset" is issued. Fastopen does not recognize that Compress has relocated files, and if the files tracked by Fastopen are used subsequently, DOS gets thoroughly confused and may destroy data. Some other disk caching programs are also guilty of this. PC Tools' own resident programs have no compatibility problems with Compress.

Parameter Specification Error.

The command line parameters specified were invalid. Check them and restart.

Orchid Technology Turbo-286e mode has been detected. Your disk(ette) files may be damaged! Slower mode is recommended for Compress.

Orchid technology has recommended that this particular board not be employed in its TURBO mode to run Central Point Backup or even Compress. This is a limitation of the Turbo-286e board. Put the Turbo-286e board into its slow mode before running.

Data error (CRC).

This generally indicates a bad sector on the disk. Use Diskfix's surface scan option on a hard disk or the revitalize a floppy option for a floppy disk to determine the problem.

Seek error.

This error indicates a hardware problem.

WARNING! Cross-linked files have been encountered!

WARNING! Unattached clusters have been encountered!

WARNING! Disk maintenance should be performed!

Recommend running CHKDSK /F before continuing.

These messages are issued when various logical problems are encountered. Run Diskfix to remedy them.

Fragmentation encountered – Compress recommended.

There are fragmented files on the disk. Compression will reorganize the data physically, removing the fragmentation.

Fragmentation not encountered – evaluate with Organization Analysis option

No files are fragmented, but you may want to reorder the disk. For instance, you can speed up file searches if all the files for a frequently used subdirectory are kept together and the subdirectory moved to the front of the disk.

File chain overflowed File Allocation Table.

An entry in the File Allocation Table pointed to a cluster outside the bounds of the File Allocation Table. Run Diskfix.

Drive not ready – press any key to retry, or Esc to cancel.

Usually, this means the diskette drive door is open.

WARNING! Insufficient disk(ette) space available for Compress.

There must be a minimum of two free clusters on the disk being compressed. You may need to delete a file or move one to another disk

Error #000-050 (Invalid choice).

Depending on the error number, respecify the parameters, drive, option, function or other key pressed. For error number 010, you will have to upgrade to 2.0 or higher before you can continue.

000	Invalid parameters
010	Pre-DOS 2.0 - cannot continue
020	Invalid drive
030	Invalid option selected
040	Invalid function key depressed
050	Invalid key depressed

Error #060-130 (Memory errors)

The following errors indicate that Compress is not compatible with your drive. The drive being compressed may have too many files or sub-directories to process. Compress is currently able to handle approximately 6000-7000 files.

060	Directory table buffer overflowed
070	Memory block table overflow

The following errors indicate that you need more memory or need to remove some of your resident programs. Compress can require up to 256K of memory depending on the drive being processed. Be sure

that you have unloaded all memory-resident programs before you start Compress, or reboot without the AUTOEXEC.BAT file. These errors may also appear if there are more files on the drive than Compress currently handles.

080	Hidden cache table overflow
090	Invalid memory block segment
100	Memory block never allocated
110	Memory not available for allocation
120	Memory not available for directory
130	Memory not available for buffers

Error #200-230 (Sector errors)

There is either a physical problem with the drive or a logical problem with the DOS control information. First run Diskfix to verify the integrity of the logical DOS information. Use the surface scan to check the readability of the data on the drive.

200	Sector nnnnn not found
210	No free sectors available
220	Unrecoverable read error
230	Bad cluster found in file chain

Error #320 – Invalid File Allocation Table

The FAT information appears invalid. Use Diskfix to correct it.

Error #550 – MIRROR.COM terminated with errors.

DOS could not run Mirror because of insufficient memory or because it couldn't find MIRROR.COM. If memory is insufficient, run Mirror by itself after exiting Compress. DOS may not be able to find MIRROR.COM if it's not in the same sub-directory as Compress or if you have removed the diskette that was used to initiate Compress.

Error #600 – No root directory filenames.

No files are on the drive so no compression can be done. Run Diskfix to check for lost subdirectories and recover them.

Error #610 – Insufficient disk space available.

There must be a minimum of two free clusters on the disk being compressed. You may need to delete a file or move one to another disk.

Error #620 – Diskette allocation exceeded

Error #630 – Unattached file cluster encountered.

Run Diskfix to correct these problems then rerun Compress.

Error #800 – 999 (DOS errors)

These are errors passed back from DOS. Correct obvious problems and rerun Compress. In general, errors 816, 832, 840, 844, and 848 indicate that Compress encountered a sector which was bad but not marked as bad in the File Allocation Table. Run Diskfix to mark the sector as unusable, then rerun Compress.

- 800 – Write protected diskette
- 808 – Drive failed to respond
- 812 – Unknown command encountered
- 816 – Data error (CRC)
- 824 – Seek operation failed
- 828 – Unknown media type
- 832 – Requested sector not found
- 836 – Printer does not respond
- 840 – Write fault encountered
- 844 – Read fault encountered
- 848 – General request failure
- 860 – Unidentified error code
- 999 – Unidentified message number

PC Format

INT 25 error: sector 00000000h, code 0207h

This usually occurs on a hard drive partitioned with IBM DOS 4.0, but never formatted with DOS 4. This is a bug in DOS 4.0. Formatting the drive with regular DOS FORMAT will allow PC Format to work fine in the future.

PC Format will not format a 1.44 megabyte disk. Gets "Device type unknown" error.

Try using DOS 3.3 or higher.

Appendix C: Technical Support

Central Point Software is backed up by a technical support staff trained to provide you with fast, courteous service. If you need assistance beyond what the manual, Help feature, and README.TXT file (if your version of PC Tools has a README.TXT file) can provide, please write or call us with the information listed in the Technical Support Checklist below.

Mail

Write to Central Point Software, Inc.
15220 NW Greenbrier Pkwy., Suite 200
Beaverton, OR 97006
Attn: Technical Support

FAX

You can also fax the information about your problem.

Our fax number : (503) 690-7133

Phone

Dial (503) 690-8080, 6 a.m. to 5 p.m., Pacific Time.

It helps if you call from a phone next to the computer you're having problems with. Your computer should be turned on and ready to go.

Bulletin Board System

For the latest PC Tools Deluxe updates and new information, dial into our new BBS. The phone number is (503) 690-6650.

CPS Bulletin Board Script File

If you have PC Tools Desktop, there is a script file for logging on to Central Point's BBS - CPS.SCR. The first time that you use the BBS you will need to log on manually (without the script file) to get your user name and password. After you have them, put them in the indicated positions in the script file. Then you can select the entry in

Technical Support Checklist

PHONE.TEL to automatically sign on to our BBS and get the latest news from the company.

Before contacting Central Point Software for technical assistance, please try to recreate the problem to provide us with an exact sequence of events. If the problem recurs, contact us by mail, FAX, or phone with the following information:

- ☐ 1. Central Point Software product: the name, version #, and file* date of the application you are having difficulty with. *For example, CPBACKUP.EXE 1-19-89 can be found by typing DIR on the program disk or using PC Shell's More File Info command.
- ☐ 2. System information: valuable information about your computer system can be easily obtained by using PC Shell's System Info command on the Special pull-down menu. Please include this information, along with the computer brand and model, in your written correspondence or have it accessible when contacting us by phone.
- ☐ 3. Disk drives: the brand names, sizes, partition sizes and partitioning software.
- ☐ 4. Additional hardware: the brand names of additional hardware installed in your computer (particularly specialty video cards, expanded memory boards, turbo boards, etc.).
- ☐ 5. Resident programs: if you had memory-resident programs loaded (other than PC Tools Deluxe applications) when the problem occurred, please provide a list of them and their version numbers. Also, please see the Memory-Resident Programs appendix of this manual for useful information about memory-resident programs.
- ☐ 6. AUTOEXEC.BAT and CONFIG.SYS contents: Type "TYPE C:\autoexec.bat" or "TYPE C:\config.sys". The contents of these files can also be viewed with PC Tools Desktop's Notepads or PC Shell's file editor.
- ☐ 7. Errors: Write down the exact wording of any error messages received from the Central Point Software product, CHKDSK, or any other applications.

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